BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

DECEMBER MEETING RECORD

Papers on Production, Marketing and National Stabilization

By MYRON H. CLARK, WILLIAM H. LOUGH, VIRGIL M. JORDAN, HORACE B. DRURY and RALPH E. FLANDERS

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2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptations and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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Comment

WHY IS it that the Taylor Society provides for discussion at its meetings of such problems as national economic planning? Because these are practical problems affecting the internal management of every individual enterprise. There is not much use in having an efficient plant if there is no demand for its products and a continuous overhead is eating up the accumulated profits of past activity, and especially if the very survival of the business in question is threatened.

IT IS time for bold collective action. The instability of the future threatens to be greater than it is now. The most illuminating single new fact brought out at our December Meeting will be found in Mr. Lough's paper on page 231. The area of consumer purchasing represented by "caprice goods" increased from 9 per cent of national income, or 17 per cent of retail purchases before the War, to 14 per cent of total income, or 25 per cent of retail purchases in 1929. The consumer stops purchasing caprice goods at the least sign of economic insecurity. "This means," says Mr. Lough, "that the resistance level to reductions in consumption is much lower than we had previously imagined . . . that the tendency is toward greater swings, both up and down, in the business cycle."

ECONOMIC SECURITY for consumers is, therefore, the outstanding practical problem of every owner and manager today. When purchasing in the caprice area stops one quarter of business stops, and then additional sectors of business stop as unemployment and reduced income in the caprice area affects purchasing in other areas. The fear of economic insecurity must be removed. The question is not whether the individual is born with an inalienable right to security or not. The practical question is, can business survive if individuals are subjected to such periodic fear of insecurity. The one incontrovertible fact with which all our management thinking must begin is that purchasing will decline when economic insecurity is felt. It is for these reasons that the Taylor Society is carrying its campaign of scientific management—research-determined facts—planning—over into the field of collective management of industrial society, the minimum objective being such a degree of stabilization as will remove from consumers as wage and salary earners the dread of economic insecurity.

The Development and Application of Standards to Production Management[1]

A Case from the Iron Industry

By **MYRON H. CLARK**
Vice-President, Reading Iron Company, Reading, Pa.

Introduction

THIS PAPER is not intended as a presentation of the arguments for, or the advantages of, standards as an aid to production, but is presented with the assumption that they are accepted in principle by a majority of this audience. Neither is it an attempt to present a new method or an ideal procedure for attacking the problem of the development and application of standards.

It is intended simply to show the line of approach being used by one company in the manufacture of puddled wrought iron products.

This paper is not even a presentation of a finished case, as the task has really only been started.

It represents, then, the application of an accepted principle to an old but complicated industry in which little has been done on standardization other than on the finished product. Tradition and opinion have each played a part, resulting in undirected growth or drift rather than organized effort.

The work is only in process of formation and the author is glad to present this paper as a possible check on his own thinking. He also hopes it may arouse discussions and bring out some thoughts that will be helpful to others as well as himself.

Webster defines a standard as that which is established by authority, custom or general consent as a model or example. Modern industrial management employs the word in a more strictly limited sense: That which is established by custom or general consent does not become a standard until it has been subjected to investigation and experiment, reduced to writing and definitely and formally approved by proper authority. It is this latter sort of standard with which we are dealing.

In the development and application of standards, we have found it advisable to sell our program to the supervisory force, and also to employes to some extent. To do this, we emphasize that standardization is not new and even cite certain historical facts.

While standardization in the more limited sense is comparatively recent, in the more general sense it is as old as the human race. Primitive man had his stone axe which closely resembled those carried by other members of his tribe. The individual variations were due rather to inability to produce exact duplicates than to direct intent. Standards such as these were based only on custom and general consent, or were perhaps due merely to lack of initiative.

The Egyptians carried them one step farther in that the artist or physician whose method departed from standard was subject to heavy penalties. Here we have standards established by authority in addition to custom and general consent, but not based on careful experiment.

The Chinese had standards which became "frozen" centuries ago. Like the Egyptians they suffered, not because they adopted standards in the first place, but because they did not improve their standards to meet changed conditions. The rest of the world outstripped them.

In our work we endeavor to profit from the lessons of history and to keep before us the fact that standards are not, and cannot be, permanent. They represent a progressive state of improvement rather than an ultimate end or ideal. Standards naturally lead to better standards.

In developing standards, as far as possible, we are building from the bottom, step by step, rather than accepting past or present practice, and then trying to cut out unnecessary steps.

We believe that at the start too much emphasis should not be put on accuracy, as the standard will probably not be perfect anyway. Imperfect as it may be, however, it will be better than no standard at all.

Since the object of business is net profit, we started on a study of costs. We found wide fluctuations due to many causes, some of them not definitely known. In order to control costs it was first necessary to control our materials and methods. A brief study of the situation indicated that there was a definite need for the development of standards and their strict application. Instructions, practice, specifications, etc., had not been reduced to writing. In other words, while the quality of the product had been carefully safeguarded, little had been done to standardize methods or rates of production in order to control the cost of the product.

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[1] **Paper presented before a meeting of the Taylor Society, New York, December 4, 1931.**

The Process

For the benefit of those who may not be familiar with the process it may be well to state now that the manufacture of puddled wrought iron is quite different from the manufacture of steel.

Pig iron is produced from ore in blast furnaces in the usual manner, according to specifications to suit our particular requirements. Pig iron, however, is a brittle, non-malleable material running about 93 per cent metallic iron.

Puddled wrought iron is produced from pig iron by a method called puddling which removes impurities such as silicon, phosphorus, sulphur, carbon and manganese, and results in a tough, fibrous material very different in its characteristics from the brittle, non-malleable pig iron.

An essential feature of the process is the relatively low temperature at which the oxidation is carried out. At no time does it exceed 2400° F. or about four to six hundred degrees less than the steel processes. Because of this low temperature the iron is in a pasty condition during most of the process and physical agitation is necessary in order to secure a uniform degree of refinement throughout the batch. As the pasty mass of iron is immersed in a bath of liquid slag a certain amount of the slag is incorporated with the iron and remains through the subsequent rolling and heating operations.

The iron is drawn from the puddling furnace in the form of a ball, and after a preliminary "squeezing" is passed through a train of rolls reducing it to a "muck bar" about five-eighths of an inch thick by three to six inches wide.

The muck bars are later cut up into suitable lengths, piled (in order to get elongation of fibers and reduction in cross section), reheated and, by a second rolling, converted into skelp, plate or bars. Skelp is the plate from which pipe is made by bending and welding. During the rolling operation, the incorporated slag layers are extended, imparting to the resulting product the fibrous structure and the desirable characteristics of puddled wrought iron.

Among these characteristics are resistance to shock, fatigue, corrosion (particularly atmospheric corrosion), ability to hold protective coatings and the quality of acting under rupturing strain much as a rope does, giving way, fibre by fibre, gradually and with warning.

Problems in the Manufacture of Puddled Wrought Iron

As already mentioned, this industry is very old, and its practices, based on custom or tradition, go back for many years. From its beginning, the manufacture of puddled wrought iron, in many of its phases at least, has been a craft rather than a science. To a large extent, responsibility for quality was left to the skill of the workman, and the personal equation was prominent in many of the processes. Until recently, management had rarely attempted to standardize conditions or reduce them to writing. There is a belief in many quarters today that conditions cannot be standardized. However, this belief seems to have been the common experience of all industries wherever the development and application of standards have been attempted.

Puddled wrought iron is on the market today because of its inherent characteristics resulting in unusual resistance to corrosion, fatigue, shock, etc. Therefore, quality control is of first importance.

The quality of wrought iron is dependent principally on the degree of refinement, slag content and distribution. The mechanical working put upon it and the temperatures to which it has been subjected during process (400° to 600° below the steel process) have as much to do with the quality as its chemical composition.

For these reasons, failure to control some detail almost anywhere in the process may result in difficulties which may not show up until several more operations have been performed and, when detected, may be difficult to trace back to the original cause.

Some of the factors requiring close control are: (1) raw materials; (2) process at blast furnace; (3) processes at puddle mills; (4) processes at heating furnaces and rolling mills (skelp mill); (5) processes at pipe furnaces; (6) finishing processes.

1. *Raw materials.* Raw materials are controlled by standard specifications in the usual manner and offer no special problem.

2. *Process at the blast furnace.* The proportions

of the charge, the amount, pressure and temperature of the air blast must be controlled.

3. *Processes at the puddle mills.* The weight and proportions of the charge and the nature of the furnace lining all have an effect on the resulting quality of iron.

The temperature of the furnace must be controlled. Too high a temperature will result in an inferior quality of iron.

The atmosphere must be controlled. At different stages in the process alternate oxidizing and reducing atmospheres are required.

The method and amount of working while in the furnace and the timing of the various operations are important.

After leaving the furnace the amount of work or percentage of reduction in cross-sectional area in rolling into muck bar has a decided effect on the quality of the finished product.

4. *Processes at heating furnaces and rolling mills* (*skelp mill*). In the furnaces, temperature, time, atmosphere and materials used in the furnace bottoms must be controlled.

Iron must be brought to the exact welding temperature without overheating and delivered to the rolls at the right temperature. If it is too cold it will not weld; if too hot, quality will be impaired.

Here again, as in the rolling of muck bar, the percentage of reduction in rolling is important. Not only the total amount of reduction but the amount per pass and the particular manner in which it is effected are important.

The product of this rolling is called skelp, which is a flat bar or plate of correct thickness and width to form the required size of pipe.

5. *Processes at pipe furnaces.* At the pipe furnaces the same elements as in the heating furnaces—time, temperature, atmosphere and nature of bottoms—must be controlled.

In forming pipe from the skelp it is necessary to have the iron at the correct temperature at the moment of welding. The edges must be clean and brought together with sufficient pressure to form a sound weld.

The pipe must comply with strict specifications as to diameter, roundness, weight and thickness of wall.

6. *Finishing processes.* In threading, the precautions that are necessary for accurate threads of any type must be taken, but as pipe threads are tapered there is one additional element which is not encountered in bolt threads.

If the pipe is to be galvanized, accurate control of the pickling process is necessary. Pipe must be thoroughly clean and free from scale.

The spelter must be of correct quality and the bath must be at proper temperature when the pipe is dipped. The pipe must remain in the bath long enough to be raised to the temperature of the spelter or it will not take the coating.

All pipe regardless of nature of finish is given a hydrostatic test, the pressure depending upon the size and type of pipe.

Organizing for Standards

With the foregoing points, among others, for which standards might be set, it is obvious that they cannot all be undertaken at once, nor can the problems be handled by any single group. We are proceeding as follows: (1) to determine where and what to standardize; (2) to develop standards and reduce them to writing; (3) to apply and maintain standards.

Various agencies have been found helpful in indicating where standards should be set: market analysis, costs, yields, loss segregation reports by causes, complaints, suggestions, promptness of shipment of orders, accident reports.

Research

In determining points at which standardization should be undertaken we are making constant use of information furnished by the Sales Research Department. Through this department we are kept informed as to standards of finished product required by the trade and these are incorporated into our manufacturing standards as rapidly as possible.

When the need for a standard is established the responsibility for its development rests either with the Industrial Engineering Department or with the Research Department, depending on the nature of the problem.

The development of standards requiring preliminary laboratory research is assigned to the Research Department.

Industrial Engineering

The development of standards which do not require laboratory research is turned over to the Industrial Engineering Department at once. Others may be referred to them after laboratory research has been completed by the Research Department.

The Industrial Engineering Department has responsibility for developing standards and reducing them to writing in standard form. Among the subjects covered are the following: (1) written standard instructions for responsibility heads; (2) standard specifications for raw materials and supplies; (3) specifications for finished products; (4) standard methods and processes; (5) standard equipment, tools, etc.; (6) standard crews; (7) standard rates of production; (8) standard yields; (9) standards of wage payment—class wages; (10) standards for maintenance; (11) standard costs; (12) standardization of forms, reports, etc.; (13) standard methods of handling and storing raw materials and finished products.

1. *Written standard instructions for responsibility heads.* We are developing written standard practice instructions to define the general responsibilities of each division of our organization together with the relation of one to another.

After the responsibilities of major divisions are clearly defined, we intend to extend these instructions to cover the minor sections, so that eventually each member of the organization will be fully acquainted in writing with his duties and relations to other members of the organization.

2. *Standard specifications for raw materials and supplies.* In order to control our manufacturing process and the quality of our finished product, it is necessary to set up definite specifications for our raw materials. These specifications are being so written that our testing facilities can determine whether or not material offered meets the specifications.

3. *Specifications for finished products.* As a guide for our inspection department, we are developing standard specifications for the quality of our finished products. These specifications when written are also useful as a guide in standardizing our methods, raw materials and rates of production, and consequently have an effect on standard costs.

4. *Standard methods and processes.* As each of our manufacturing methods is investigated it is reduced to writing to record the present approved practice for producing a finished product of standard quality.

As an example, in setting standards on pipe furnaces it is necessary to cover furnace design, preparation of material, furnace time, fuels, temperature, drawing speeds, furnace bottom, forming tools. As fast as better methods are developed the standards will be revised to conform.

5. *Standard equipment and tools.* As a result of standardization of equipment and tools we are decreasing our inventories of numerous kinds of spare parts.

Some of the items with which we are particularly concerned at the present time are electric motors and accessories, packings, taps, dies and chasers.

6. *Standard crews—labor standards.* Through our studies incident to the standardization of methods we are gathering data which are very valuable in determining standard crews for the various operations.

These are being expanded from individual operations to complete departments and eventually will embrace all plants.

7. *Standard rates of production.* Standard rates of production follow naturally from the establishment of standard methods, equipment, tools and crews.

We are building up standard rates of production for each operation. These may be expressed in units per man hour or per machine hour or tons per day, per hour or per turn, etc.

These standards are indispensable in planning and scheduling, and their establishment prepares the ground for a rational approach to a wage-incentive plan.

8. *Standard yields.* Standard yields are closely tied up with standard production. As we use the term it is the ratio of output to input or the percentage of finished product to the amount of material started in the process.

These yields are valuable in planning and scheduling, in the ordering of raw materials and, along with standard production rates, will be useful later in approaching wage incentives.

9. *Standards of wage payment—class wages.* We are giving special study to the matter of wage rates, with the object of adjusting rates of pay so that, as nearly as possible, work will be paid for in proportion to its difficulty, skill required and company value.

In the attempt to standardize wage rates, we found it necessary first to standardize the jobs, or at least their names, so that we should not have similar jobs with different names, or the same name for different jobs in different locations.

We are developing fair class-wage rates for each job, based on job evaluation.

10. *Maintenance standards.* Major repairs are carefully planned and scheduled in advance and estimates of cost are prepared. This, of course, cannot be carried out in emergencies, but such cases fortunately are exceptional.

Before starting on extensive repairs, such as the rebuilding of a pipe furnace, we carefully consider whether we should rebuild according to the existing design, modify the design, or replace with entirely new equipment.

By periodic inspection and upkeep we try to keep major repair jobs to a minimum.

We are working toward a plan by which we hope to establish a standard ratio of maintenance-labor hours to direct-labor hours on any major piece of equipment. Maintenance standards are, of course, valuable in establishing standard costs and in dependable production scheduling.

11. *Standard costs.* We have assigned responsibility for the development of standards to the Industrial Engineering Department rather than the Accounting Department.

In building up standard costs we are making good use of our standards of materials, production, labor, yields, wage rates, maintenance, etc.

With us, volume has such an influence on various operations that we have found it advisable to develop standards based on different volumes.

12. *Elimination, standardization and simplification of forms, reports, etc.* In order to handle effectively the detailed information necessary in our various activities, including the work of developing standards, we have found it advisable to make a complete survey of our printed forms. We are reducing the number of forms in use, and many of the remainder are being revised and simplified so that they will be more usable.

13. *Standard methods of handling and storing raw materials and finished products.* In this work the Industrial Engineering Department ties in closely with the Planning Department. While the latter determines the maximum and minimum inventories to be carried, the Industrial Engineering Department has the responsibility of developing methods of handling and storing, and the amount and location of storage space necessary.

Preliminary study shows that with some rearrangement, the entire responsibility for storage can be placed on the Shipping Department, permitting operating foremen to concentrate on the operation of their production departments.

Planning Department

This department has the responsibility for controlling and scheduling production. All orders are first routed to, and all shipping promises are made by, this department. It issues all manufacturing orders and has responsibility for the control of inventories. It is responsible for determining maximum and minimum inventories, which are based on information received from the Sales Research Department.

By using the standards for rates of production and yields established by the Industrial Engineering Department it is able to schedule and control production.

This department is also responsible for the ordering of raw material and supplies, and scheduling the time of arrival.

The Application of Standards

After standards are developed responsibility for their application is definitely assigned.

The operating departments are responsible for producing finished goods of standard quality by standard methods and with the standard amounts of labor, fuel, power, etc.

The Manufacturing Standards Department, which in some plants might be called the metallurgical department, passes in advance on proposed standards relating to materials and manufacturing processes. After a standard has been made effective this department is responsible for checking its working in actual practice and for seeing that it is being maintained by the Production Department.

The Inspection Department is responsible for checking incoming materials against specifications and for inspecting finished products and materials in process to see that the standards of quality are maintained by the Production Department.

The Purchasing Department is responsible for ordering materials and supplies according to standard specifications.

The Planning Department is responsible for maintaining inventories at proper levels, for the prompt shipment of orders and for handling and storing raw materials and finished products according to standard practice.

The Maintenance Department is responsible for the application of maintenance standards.

The Accounting or Cost Department is responsible for compiling information which will show the relation of actual to standard costs.

No standard becomes effective without first being submitted to the responsibility head directly responsible for its application. If he approves it, such approval signifies his agreement that the standard is reasonable, and his acceptance of full responsibility for its application. Usually he is kept fully informed during the process of development, and in every case he is given full opportunity to study the proposed standard and, if he does not fully approve of it, to suggest revisions. His suggestions are given careful consideration. If they are sound, the proposed standard is revised; if not, the reasons are pointed out to him. Our method is to "sell" the standard, if possible, rather than to force it. While this method may require some additional time, we find it is time well spent, as it forestalls many of the excuses commonly heard for failure to meet standards.

Non-Financial Incentives

As an incentive for meeting standards, we distribute publicly and periodically certain cost information which we have found very effective. The departments are grouped according to their cost showing for the past month. In Group No. 1 we include all departments which have established a low cost record for the year. In the first monthly report after starting, Group No. 1 included eight departments; in the second, twenty, in the third, thirty.

Conclusion

In our work of developing standards, we are giving careful thought to avoid overemphasis of one or more factors at the expense of others. In considering the performance of a foreman against standard, we include orderliness, maintenance of equipment, promptness of shipments, condition of personnel and safety record, as well as production and costs.

After all is said and done, standards are not an end, but a means to an end. The adoption of various standards in a process or series of processes is but one phase of an effort toward routine operation of the process or processes, and it is quite evident that in any operation the nearer we approach to perfect routine operation, the nearer we approach to uniform quality and costs. This, in turn, carries with it a minimization of managerial and even of executive duties.

In any industry such as the wrought iron industry, which is a composite of a relatively large number of individual processes in themselves intricate, it is necessary in the adoption of standards and controls of which the standards are a part, to evaluate carefully the precision of control and standards which is possible and also (and this is a very important part of the consideration) justified.

It is quite conceivable that in some processes, and there are many such, the utmost precision in standards and control is essential to insure the proper quality and to insure costs which will permit the competitive sale of the product. On the other hand, there are many processes where a considerable variation either in control or standards does not give prohibitive results either in quality or cost. In such a case, the expense of great refinement in standards and costs would of course be unjustified; or, in the case just enumerated, while a more accurate system of control and standards might be desirable and give some improvement in quality or manufacturing costs, the very cost of the intricacies of the control system might make further precision unjustified. The idea I am intending to convey is that one of the most important factors in a study of controls and standards in a business such as the wrought iron industry, with its large number of processes, all of which are more or less complex, is to evaluate the degree of precision that is possible and then to evaluate the degree of precision that is justified. So we may conclude by saying that we are interested, first, in the need of precision; second, in the ability to get precision, and third, in the cost of securing precision; and it is with these basic ideas in mind that we are developing a system of standards and controls.

Discussion

E. P. Blanchard.[2] Mr. Clark almost eliminates me as a discusser of his paper, for my own experience in standards has been restricted to granite cutting, car building, metal stamping and machine shops, during the past twenty years plus. However, in this experience I find a common ground with him in what I consider an important phase of standardization; namely, the instability of standards. To quote Mr. Clark, "Standards are not and cannot be permanent; standards must be progressive." But in addition to this there are other points which aggravate this instability to which I refer.

I admire his courage in "pioneering" such work in an industry which, from my conception of it, would not seem too simple in lending itself to standardization, and I marvel at his courage when one must consider the long corridor, the purgatory, that precedes the final arrival even at a first, tentative set-up of operating standards.

It is evident that he is very conscious of this purging process, that he is approaching an ideal never quite attainable, for in addition to the progressive condition or feature, he provides throughout his paper for variability to suit varying conditions. He speaks of standards related to process, to method, to volume, and accepts the idea of relativity with standards established only as a guide.

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[2] Assistant Sales Manager, The Bullard Company, Bridgeport, Conn.

My own experience in this comprises mostly change, modification, revision; and, like the rules of French grammar, standards and rules are stabilizing even if the majority of applications are in the exception. It is in management for profit, the most important point in Mr. Clark's paper, that the exceptions are most interesting.

Consider seriously, then, first, the stability of standards and next the variations, set by policy or personal judgment, that shall be related to the established standards but, due to current conditions, are of a special interest to management for profit.

The most stable standards are those which are set by exact science and those which occur in dimensions and forms, established as a result of study and research. The variations more often occur in operating standards, which are essentially "dynamic" as compared with the relatively "static" conditions of established facts or axiomatic premises. Notice that standards controlled by equipment, too, are easier to maintain than standards for personal attainment and, in management for profit, my first observation would be that equipment facilities are more easily managed and controlled than human abilities.

In material inventory, the maximum and minimum quantities previously set would hardly apply under the exaggerated conditions of a boom market, or under the very depleted conditions of the present time. It is in a great many instances good business to reduce the minimum for inventory under present, existing production conditions.

Performance standards are subject to a multitude of influences that vary from the weather to ivory, and aside from controllable factors and measurable losses that may be discovered, there is even yet a great amount of wisdom required in applying them judiciously under the alterations of methods that may be required by fluctuating volume. In other words, the formula for economic lot sizes develops new factors of importance with each swing of production.

When such swings are in process, there is another factor brought out by Mr. Clark to which more than nominal interest should be granted, and that is the relation of non-productive to productive labor under conditions at either end of the scale.

Having indicated such thoughts to you, I am sure that before this audience it is not necessary to carry them in further detail of thinking on my own part, but to offer them to you now for further discussion. Mr. Clark states that standards are not an end, but a means to an end; and I would carry it one step farther, in a paraphrase, and state that "of their setting there shall be no end." They are found, therefore, in varying degrees of stability, in varying degrees of relation to the exact performance that might be expected under certain given conditions. Therefore, in management for profit, I consider them a most valuable guide. "Moreover, by them is Thy servant warned, and in keeping of them, there is great reward."

H. S. Person.[3] I should like to raise the question whether it is not better psychology to consider a given standard as fixed for a given set of conditions rather than to consider it a guide for guessing variability of new conditions. Should not every new set of conditions give rise to a new standard reflecting these new conditions?

For example, in determining maximum and minimum inventories, volume of production and time of procurement are the important elements. As long as these two remain the same the standard of maximum and minimum inventories should remain the same. When either changes, should not a new standard be computed rather than a guess made as to the variation from the old standard?

King Hathaway.[4] During most of this week at meetings of the A.S.M.E. and the Taylor Society I have been listening to papers and discussion dealing with the economic problems with which the world is struggling. While I should hesitate to question the importance of such papers I must confess that they have left me feeling rather helpless, hopeless and befuddled. It has seemed to me that we are striving to deal with factors so numerous, so intangible, so widespread and so complex as to place them beyond our understanding or control and that in doing so our attention has been distracted from factors which are tangible, understandable and within the control of the engineer and manager.

It is refreshing, therefore, to hear and discuss a paper dealing with so concrete a subject as the application of scientific management in a specific industry to which, so far as I know, a complete and thorough application had not before been made. While an application may not be of much help in ending the present depression, in my estimation, such applications, if they were more general, would contribute greatly to the prevention of future depressions or render them less severe.

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[3] Managing Director, Taylor Society, New York, N. Y.

[4] Consulting Engineer, Manning, Maxwell & Moore, Inc., New York, N. Y.

Let me here quote a statement of Taylor:[5]

"No system of management, no single expedient within the control of any man or any set of men can insure continuous prosperity to either workmen or employers. Prosperity depends upon so many factors entirely beyond the control of any one set of men, any state, or even any one country, that certain periods will inevitably come when both sides must suffer, more or less. It is claimed, however, that under scientific management the intermediate periods will be far more prosperous, far happier, and more free from discord and dissension. And also, that the periods will be fewer, shorter and the suffering less."

Our retiring president, Mr. Henry P. Kendall, in his talk last night made the statement that there are many ways in which industry can help itself. I think we may all agree that had the management of our country's industries exercised more prudence and foresight and been governed in its actions more by facts than by hunch or emotion, we should be better off today. And is not a well-worked-out system of scientific management, with its properly established standards and the control that it affords, an almost indispensable tool if industry is to avoid its share of the costly errors that contribute to economic maladjustment?

Mr. Clark very modestly states that his paper presents nothing new. In general this is true; his approach to the problem and his manner of dealing with it are classic. They are the same as those followed by Taylor, Barth, Gantt and the rest of us who were associated with Taylor and have attempted to follow in his footsteps. Nevertheless, those who have gone through the trials and tribulations of working out and putting into practice an application of scientific management in a field where there is little of precedent to fall back on will appreciate the magnitude of his task and regard him as a pioneer.

He has used the term "standards" in the title and body of his paper in a broader sense than we have generally accorded it in scientific management, but his doing so only serves to emphasize the fact that without standards we cannot have true scientific management. His paper deals not only with the development and establishment of standards but outlines the plan of organization, management technique and mechanisms essential to their effective use in the running of a business.

There have been applications of the Taylor technique and principles in industries which, while differing widely in the nature of product, are from the standpoint of organization and management similar to that described by Mr. Clark. The first of these was Taylor's own application, in the early nineties, in paper-pulp mills. About five years ago I worked out an application for a company engaged in packing dried fruits whose processes presented in a great measure problems similar to those with which Mr. Clark is dealing. Unfortunately, however, there is no available record of these more or less comparable installations.

Industries seem to group themselves not so much by character of products as by similarities in the nature of their processes. While it is true that in no two plants, even in the same line of industry, may the mechanism or system for the application of scientific management be identical in all its detail, there does seem to be for each group or class of industries a basic type of mechanism. A plan of organization, a system and a technique which have proved satisfactory in one concern in a given class of industry, to use as a base and modify to suit the needs of a new application within the same class, are of great assistance.

The literature dealing with the means through which scientific management may most successfully be applied is meager and deals mostly with its application to a single class of industries, with some variation within that class. The successful application of the principles of scientific management and the successful use of standards is, as Taylor realized, dependent upon organization and properly articulated mechanism.

Unfortunately today we have too little to guide us in the way of good examples of true-to-form, thoroughgoing and comprehensive applications of scientific management, such as would have been approved by Taylor. There has been widespread application of Taylor's teachings but in so diluted, so incomplete and so superficial a manner as to fall far short of the possible results. Apart from the mass-production industries I feel safe in saying that production with the same plant and personnel could be increased, in a great majority of plants, from fifty to seventy-five per cent, or a corresponding saving in cost effected, through such complete and painstaking application as that dealt with in Mr. Clark's paper.

Taylor's prediction that the adoption of scientific management would come about slowly because few of those at the head of industry would be willing to take the time and trouble involved seems to have been borne out during the post-war boom period. Superficial and half-way applications of what has passed as scientific management have sufficed. I doubt, however, that they will prove satisfactory during the next period of prosperity. I believe that the teachings and work of Taylor will be studied more carefully by those who in the past have assumed a knowledge greater than they possessed of the principles of scientific management and of the means essential to their practical application.

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[5] Taylor, Frederick Winslow, "The Principles of Scientific Management," Harper & Brothers, New York, 1919.

I believe that we of the Taylor Society, which was founded with the avowed purpose of promoting the science of management as propounded by Taylor, have fallen into the error of taking for granted a greater knowledge and more complete understanding of the principles of scientific management and of the means for their application than exists in fact. My feeling is that we may be justified in regarding the partial and imperfect applications of Taylor's teachings only as a stage on the way to something better and that our Society must show the way.

Mr. Clark's paper may well be the opening gun in a campaign. It should be followed with a series of papers each dealing in detail with the various features touched upon in his comprehensive resume.

I concur with the view expressed by Mr. Clark that in establishing standards too much emphasis should not be placed at the start on accuracy, and that an imperfect standard is to be preferred to none at all. Taylor himself advocated bringing standards, and I here use the term in Mr. Clark's sense, up progressively from one attainable level to a higher one. In my own practice I have designated these in order to avoid future difficulties as "temporary standards," "temporary instruction cards," etc.

Temporary or imperfect standards set up during the early stages of the development and installation of a system of scientific management are valuable in the direct results which they may produce, but they have perhaps a greater educational value and pave the way for the more difficult and thorough work to follow.

Mr. Clark has wisely pointed out that standards must be progressive. Obvious though this may seem, many intelligent people feel that the establishment of standards presumes or entails a lack of progress. My own experience indicates that we have more to fear from ill-considered or too rapid change than from inertia and that our chief concern must be with maintenance of the established standards. Since the war I have seen several model installations of the Taylor system of scientific management gradually disintegrate. And this was due to failure to maintain and enforce standards rather than to any quality of immutability. Mr. Clark would do well to safeguard from the start the standards, the technique and the mechanism which he establishes by a system of periodic inspection, making this one of the duties of a qualified man. He speaks of standard-practice instructions defining responsibilities, the nature and scope of functions and inter-relationships of departments and of individuals. These are what we have usually designated as "standing orders," which also define standard procedures or methods of handling various transactions. Unless what is actually being done is periodically checked with these standing orders they will soon not be worth the paper on which they are written. Periodic check-ups will indicate the need for revision of this class of standards. But changes must be passed upon by someone familiar with the system of management as a whole in order that what may seem to be an improvement at one point may not be detrimental at others.

Mr. Clark very briefly referred to inventory control. Previous discussers have mentioned maximum and minimum quantities as a means to this end. As Dr. Person pointed out maximum and minimum quantities cannot be permanent. It is distressing to find anyone today thinking that once they have been established the job is finished for all time. The same is true of standard manufacturing lot quantities. I believe that more well-worked-out systems for production and inventory control have proven unsuccessful as a result of failure systematically and intelligently to revise maximum, minimum and ordering quantities at sufficiently frequent intervals than for any other reason. And this revision calls for a greater knowledge of the business and more business judgment than may be expected in a clerk who keeps the "balance-of-stores" records, a storekeeper, purchasing agent or department head, since it involves questions of finance, marketing, product development and manufacturing methods and policy. The wise general manager will keep a watchful eye upon it.

Probably one of the greatest single factors contributing to prolonging and rendering more acute present unemployment is excessive and unbalanced inventory. And this is due to sloppy management with its lack of foresight and prudence. One large company with which I am familiar has been for a year past shipping out of stock about one-third of its orders in an effort to reduce an inventory that had gotten out of bounds. This means that a proportionate number of people have been added to the ranks of the unemployed, to say nothing of the loss from obsolescence and capital unnecessarily tied up. All of this might have been avoided had there been established, and more particularly currently revised, standard maximum, minimum and ordering quantities for the various commodities manufactured. This is one of the ways that, as Mr. Kendall intimated, industry may help itself. It is typical of many others, all of which are facilitated by the type of organization, the mechanism and technique outlined in Mr. Clark's paper. As Dr. Person remarked these are only the tools of scientific management, but I should like to emphasize a point frequently overlooked: that if, as we all recognize, under scientific management it is vitally important to provide the workman in the shop with the tools most suitable to the job and to keep them in good condition, is it not of at least equal importance that we do as much for the management? That Taylor appreciated this is evidenced by the painstaking attention to detail in the comprehensive systems worked out by him or under his guidance. It is unfortunate that so many of our major executives feel that such matters are too inconsequential to receive their attention.

This criticism may, I think, also be made of our teachers of management and those who exercise financial control over management. It is easier to say what should be done than to work out the means for doing it.

In the closing paragraph of his "Principles of Scientific Management," Taylor enumerated a number of the features of applied scientific management of which he said:

"These are, however, merely the elements or details of the mechanism of management. Scientific management, in its essence, consists of a certain philosophy, which results . . . in a combination of four great underlying principles of management."

Farther on he says:

"Scientific management does not necessarily involve any great invention, nor the discovery of new or startling facts. It does, however, involve a certain combination of elements which have not existed in the past, namely, old knowledge so collected . . . and classified into laws and rules that it constitutes a science; accompanied by a complete change in the mental attitude . . . A new division of the duties . . . and intimate, friendly co-operation to an extent that is impossible under the philosophy of the old management. *And even all of this in many cases could not exist without the help of mechanisms which have been gradually developed.*" (Mr. Hathaway's italics).

W. H. Leffingwell.[*] I was particularly interested in Mr. Clark's paper because it once more emphasizes the versatility of scientific management. I firmly believe, and have believed for a great many years, that the application of these principles is infinite.

I do not see so much to criticize in Mr. Clark's paper, but my friend, Mr. Hathaway, said some things that I should like to criticize. I am very timorous in criticizing such a dyed-in-the-wool Taylor man, but nevertheless I feel that I ought to do it.

He complained about the fact that the Taylor System is not so well known as it should be. One of the reasons for that, in my opinion, is the muddled manner in which people talk. Mr. Hathaway used a word that I have consistently tried to avoid in all of my work, and that is the word "installation." You should not speak of installing the Taylor System as you would a boiler.

The word I like to use is development. Mr. Clark and Mr. Hathaway have shown us how to start the thing, and Mr. Hathaway has emphasized that it takes years to get it going. You cannot say that a thing which takes years to work out is installed; it is developed. One of the great dangers is talking about installing systems. I do not like the word "system" either, because it is so circumscribed, so small.

The general public gets the idea that if they have some kind of a perpetual inventory they have the Taylor System. Or, if they have time study, they have the Taylor System.

Mr. Taylor, himself, emphasized this. He listed a whole lot of things and said, "none of these things is scientific management."

I am very hesitant about mentioning another point. Mr. Hathaway confessed to a good deal of ignorance about economics, and I am sure I do not know as much as he does about it.

He said he was muddled by the discussion of economic questions. Perhaps I am just as muddled as he, but I do feel that if the principles of scientific management had been used all the way through our industrial system we never should have been in this condition.

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[*] President, W. H. Leffingwell, Inc., New York, N. Y.

If one plant has scientific management and the competitive plant does not have it, the whole industry is affected, and whether you like it or not, the thing becomes a question of economics—not only of local economics or national economics, but of world economics.

It is a condition and not a theory that confronts us, and I say that the more discussion there is, not necessarily on the vague aspects of the thing, but on the concrete aspects of the application of scientific management, the better it will be.

I want to give you just two examples, in closing, of how business has neglected to manage, as we would say, in a scientific manner. I have in mind one particular organization that has been in a family for a good many years. They have had a policy something like this: They would run the factory at full tilt, and at the end of the year hold an auction sale to sell off all the stuff they had not sold in the meantime. That was a fine idea as long as it worked, but it brought about a condition of competition, and competition forced this family organization to see what was the matter with itself.

I had the privilege of going into that office where I found the most ridiculous sort of things. They had no idea whatsoever of management. They knew how to make their product, but they did not know how to make it economically, they did not know how to market it economically, nor did they know how to control it from the administrative standpoint.

There could be no installing in that organization! I have been working there a year and I have not done a single concrete thing. I believe I have spread a lot of knowledge on what ought to be done and am gradually building up a consciousness of their situation.

Another example is an organization which has installed almost everything you can think of. They have installed incentive wage payment all through the organization. They spent some twenty or thirty thousand dollars in setting the rates, which are high in dozens of places because there is no proper flow of work.

They have a cost system but they have no costs; they have a planning department but it plans nothing; they have a statistical department with the most modern statistical machinery and they do not have a single report or a control record that is worth looking at.

I believe that we must be very careful about that word installation, and I am not referring now to Mr. Hathaway in particular. We must always talk about development because, although the Taylor Society has been in existence for twenty years, and although the members of the Taylor Society have done everything they can to develop and spread the knowledge of scientific management, yet we are in one of the worst depressions that has ever been known. Any man of thinking ability will see that this condition could not have existed if all of the principles of scientific management had been carried out.

King Hathaway. As the attacked party, I would like to say about three words. First, I will amend wherever I unfortunately used it, the word "installation" to read "development and application." As a matter of fact in anything that I have written on the subject in recent years I have used the word development.

Also if any of you want to make sure that Leffingwell is right in what he said there, want to check up on him, and will go back in the files of the Engineering Magazine to about 1908, you will find an article that I wrote under the title, "The Spirit in Which Scientific Management Should Be Approached." Later, in Thompson's compilation of articles and papers, the title was changed to "Prerequisites to the Introduction of Scientific Management." These prove that there is nothing Leffingwell said that I do not heartily endorse. While Taylor did say that "this list of things is not scientific management," and while Taylor, in the latter years of his life, was wont to emphasize the principles and minimize the mechanism of scientific management, nevertheless, any of you who have had experience, as Leffingwell, Gus Schulz, Joe Carlin and various others in this room have had, in attempting to apply the principles of scientific management in practice, will know that mechanisms or technique are essential to the consistent, continuous and most effective application of those principles; that merely an acceptance of the principles of scientific management, or of the spirit of scientific management, does not make it effective. You must have mechanism; you must have system.

It is the lack of understanding of what is involved in the development of a system of scientific management, or a means of applying scientific management, which is, I think, in large measure responsible for the imperfect applications of scientific management, criticized in my discussion. I do hope that Mr. Clark will bring out the papers I asked for, covering the technique to guide others who may want to follow in his path and prevent their making mistakes.

G. E. Schulz.[7] I think we should be careful in changing standards that no change is made except to accomplish real improvement. From working with young engineers I know their tendency to change things continuously.

The bad effects of such things as time studies and rates which are not scientifically worked out are also worth emphasizing. I know of a firm similar to the one described by Mr. Leffingwell where the unscientific setting of piece rates completely destroyed good work that had been done in the organization over a period of years and broke down the spirit of the place. What managers need today is a concept of organization as a whole and the Taylor Society can do much to help them acquire it.

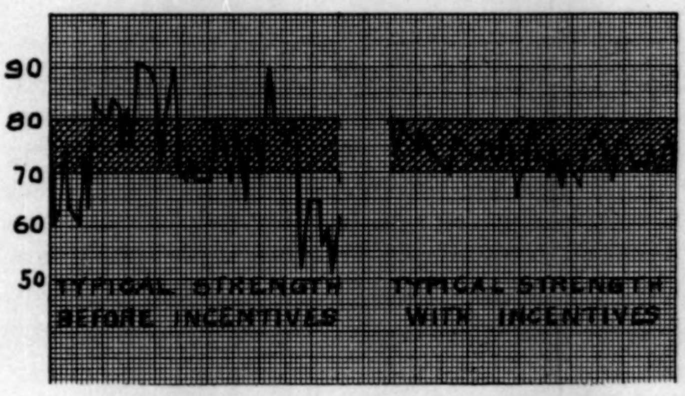
Sanford E. Thompson.[8] I am glad to see a tendency to revive the old scraps we used to have in the Taylor Society.

I am going one step farther and disagree with both Mr. Hathaway and Mr. Leffingwell. I feel they did not go far enough.

The remark was made that scientific management could have prevented the depression. I feel that if all of the manufacturing establishments in the country had been operating under scientific methods of management, we should still have had the depression because its causes go beyond those involved in industrial establishments. Scientific management in industry might have prevented the depression of 1921 but not that of 1930. In order to prevent such a depression it would have been necessary to extend scientific methods of management beyond the factory establishment into banking and finance and some of the broader problems of business economics.

Nevertheless, I do feel that our fundamental prosperity—the prosperity that we have been enjoying until the present slump—is dependent upon our production, or the amount of product that we turn out per man in this country as compared with that in other countries.

Mr. Hathaway spoke of the pulp and paper mills with which Mr. Taylor and I were associated. In recent developments in this industry, we have gone much farther since that time. The general principles employed in this type of industry are quite different from those in industries like a machine shop, where there are separate operations. In a continuous manufacturing process, such as paper making or in a chemical process like cooking pulp, it is maintenance of standards of quality and not quantity that must be emphasized. For example, in fixing incentives in the cooking of wood pulp, which is the most important operation in pulp making, we do not say that we will pay a certain rate for a definite amount of production. Instead, we fix definite standards, teach the operators how to attain them and then pay an incentive for keeping within the required limits.



The diagram shows the actual variation in tested strength of pulp from consecutive cooks of wood. The standard strength is between seventy and eighty pounds per square inch of a hand-made sample. Note the remarkable effect of the standardization with incentive for maintaining this as shown at the right of the diagram. This permitted the manufacture, from this pulp, of a paper of high uniform quality which increased its value by many tens of thousands of dollars per year.

Similarly, in a paper mill we set up very careful standard limits of moisture, strength, thickness, moisture content and formation, and give an incentive for achieving these standards. The result in improved uniformity in quality of the paper and in the saving of material is remarkable.

In setting such incentives one must take into account all of the group of men responsible for meeting the standards. In paper making these are not only the men on the paper machines but the men on the beating engines who are respossible for freeness and consistency, which in turn influence the quality of the paper.

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[7] Consulting Management Engineer, New York, N. Y.

[8] President, The Thompson & Lichtner Co., Inc., Boston, Chicago, Cincinnati.

Robert E. Klise.[9] There is one question I should like to ask. It has been shown in the paper and discussion that production management is not independent of markets. If we grant that premise should not production management concern itself with the application of standards to marketing problems?

For example, if a large city is planning to put in a new piping system, would Mr. Clark's firm advise the city to buy all the pipe at once or to build up the system through the years and thus help the company to a more uniform rate of production? This would make the standards within the producing organization less subject to change.

John Gurney Callan.[10] I am in enthusiastic agreement with what Colonel Thompson has said. Frequent mistakes are made by the engineering and industrial crowd but in general they have made a better showing than the men who control finance and credit. I admit they have a harder job than we but I think I am repeating Colonel Thompson's idea when I say that if all the other jobs had been done as well as manufacturing and engineering we should not be in as much difficulty as we are today.

Henry P. Dutton.[11] I want to compliment Mr. Clark on his paper. If the importance of standards were better understood we should have less discussion of the difficulties of wage-payment methods and budgeting. Sound standards are the basis of these and many other things.

Following Mr. Blanchard's discussion Dr. Person brought out the point that we must have flexible standards. Going back to Taylor's work, it should be possible to do something even simpler and work out general standards, applicable to a whole series of cases. In "Shop Management" Taylor brings out the possibility of developing performance formulas, of expressing the variables in general algebraic equations. John Williams has worked out a formula for a flexible budget on the same principle. In a small business with which I was connected we worked out a formula which expressed the costs of the business as a certain fixed amount, say $10,000 per month, plus say 40 per cent of sales. In principle the elements of nearly any situation may be put in terms of a formula. Even where precise values cannot be assigned to these terms it is often possible to work usefully with approximate values.

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[10] Professor of Industrial Management, Graduate School of Business Administration, Harvard University, Boston, Mass.

[11] Associate Editor, *Factory and Industrial Management*, McGraw-Hill Publishing Company, Inc., Chicago, Ill.

Problems in Economic Security

1. *For those who believe in individual responsibility*:

Assume that there were such a universal habit of thrift that everybody—from bank president to humblest worker—so apportions his income that the necessary proportion is devoted to accumulating reserves against the major economic hazard of unemployment. Economic institutions and processes being what they are, the method of accumulating such reserves is by periodic payments out of income into fiduciary institutions. These institutions invest their funds in interest- or dividend-paying securities, retaining only a working balance in cash for normal current transactions. Questions: (1) What would be the effect of such saving on standards of living? (2) What would be the effect of the investments on production capacity? (3) What would be the effect on consumption, commodity prices, wages, dividends and interest? (4) In case of the sudden appearance of a depression and all people out of employment presented claims at the same time, how would the fiduciary institutions satisfy them?

2. *For those who believe in company reserves*:

Make the same assumptions and ask yourself the same questions, but recognize that the reserve funds would presumably be handled in one of three ways: (1) cash reserves in whole or in part; (2) investment by the company in industrial securities; (3) deposit by the company in fiduciary institutions which then make the investments; (4) cash carried by the State or investment by the State (directly or through deposit in fiduciary institutions) on behalf of all companies.

3. *For those who believe in State compensation*:

Ask yourself the same questions, but in this case the assumptions are modified as follows: Either (1) the State builds up a fund which it collects annually by taxes and holds this in cash or invests it in securities directly or through fiduciary institutions; or (2) during the period of depression the State collects its fund through heavy taxation or the sale of bonds.

Final question: does thinking about these questions lead to the conclusion that, with or without unemployment insurance, the underlying problem is one of avoidance of depressions?

Consumers' Retail Purchases, Pre-War and Post-War[1]

Showing the Increasing Importance of the "Area of Caprice" in Consumer Buying

By WILLIAM H. LOUGH[2]

President, Trade-Ways, Inc., New York

Introduction

By PAUL T. CHERINGTON

President, American Marketing Society, New York

THE AMERICAN Marketing Society, which at the invitation of the Taylor Society arranged this meeting on marketing, is this morning making its first appearance. We began the process of organization in September and have now enrolled some two hundred members from the fields of marketing enterprise and marketing research. The organization will hold its first meeting in Washington in December in connection with the meetings of the American Economic Association but the appearance this morning is our initial public bow.

We sometimes think now of 1928-9 as a time when everybody was happy just as 1931 is regarded as a time when everybody is sad. But even in 1928 and 1929 there was much talk of "profitless prosperity" and even now some concerns are making money and some people are happy.

Business recovery probably will not take the form of a pleasant change in atmospheric conditions like the springing up of a northwest wind. It is more likely to take the form first of an occasional instance of success due to good management or good sense, and second of the gradual increasing of these until there is a better spirit abroad.

Recovery really needs better defining than it ever has had. It cannot mean the restoration of the profitless activity of 1928-9, nor can it mean planned prosperity in which individual initiative is subordinated to some comprehensive scheme. If it means anything it means the bringing about of conditions of more satisfactory living for more people.

At least for most consumer goods the family is the eventual purchasing unit. Our prosperity of 1928-9 and thereabouts did not affect everybody, but it did reach a large number of the people. There were in this country at that time about twelve million family incomes which were safely above the subsistence level, with a surplus for spending or saving. Just as the prosperity did not reach everybody, so the depression has not reached all homes, but it has reached enough to cause a radical change in the attitudes of many whose basic income is not seriously impaired, even though the surplus income may be reduced or threatened. This change in attitude toward spending is in many respects more serious than the measurable shrinkage in earnings. If people will not spend, the fact that they can spend is of merely academic interest.

There is one point in this consumer's attitude at this time which may well be built into the thinking habits of every going business concern; namely, the fact that the consumer has become supremely careful in appraising merchandise as to its value-in-use to him. There are numerous instances on record in which, by good management, careful planning, and the exercise of supreme skill and intelligence by a manufacturer of consumers' goods, a maximum of value-in-use has been offered for a minimum price, and the offering has been met by immediate consumer response. And it is seldom, even in these times, that a supremely good value, from the standpoint of the consumer's own interest, has failed to receive the consumer's recognition. The problem is not merely one of lowering prices but rather of giving a maximum of value-in-use for a minimum price.

The deflated consumer is cautious, exacting, unhurried and intelligently selfish. Extravagant claims of makers or vendors leave him stone cold; emotional frenzies do not interest him. This may be a temporary and abnormal state, but there is nothing to be gained by ignoring it. What he wants is a maximum of value-in-use for a minimum of his tightly held money. Sometime he may again set greater store by superfluities and by elegancies but just now these elements of value are at a minimum. And those who advertise or sell consumer merchandise may with profit take this to heart.

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[1] Paper presented before a meeting of the Taylor Society on marketing, arranged by the American Marketing Society, New York, December 3, 1931.

[2] Assisted by Martin R. Gainsbrugh. Acknowledgment is due to many persons, including officials and staff members of the U. S. Department of Commerce, the Chamber of Commerce of the U. S., and various trade associations and trade publishing houses, who have kindly supplied valuable information and advice.

A recognition of this, and good use of it, may mean a recovery of prosperity to individual concerns, even though it may not generally revive the high days of profligate spending.

Frequently we are told that every recovery from a business depression has been paralleled by the commercializing of some great discovery or improvement or invention—the electric motor, the automobile, the transcontinental railway, the harvesting machine—something which widened the confines of human activity and improved the ability of man to win a living from his environment.

The idea may be worth thinking about that discovery of the consumer and the invention of better ways of appraising his wants in advance may be the great improvement in living conditions necessary to give recovery its impetus this time.

We have been assuming that recovery will first be noticed in the basic industries. This may be true. It certainly is true that the recovery cannot become general without showing itself fairly early in iron and steel, petroleum, automobile manufacture, building and the other great underlying industries. But it seems to be something more than an accident that many well-managed concerns even now are showing good profits. Within the past month there have come to my attention over fifty concerns which have shown this past quarter a marked gain in both volume and profits, and of these several bid fair to have in 1931 the best year in their history. This raises the question whether recovery is not likely to show first among the well-managed concerns in various industries in various parts of the country rather than in entire industrial or trade groups.

One significant common characteristic of all these prosperous concerns is the fact that they are companies which have a keen realization of the consumer's attitudes and desires and adjust their operations to these rather than to their own habits or traditions.

The three papers that we are presenting for discussion are concerned with this discovery of the importance of the consumer and with better ways of appraising his wants. Mr. Lough's paper, in discussing expenditures before and after the war and comparing some of the elements which have developed an appreciation of the significance of a spendable surplus, really gives the statistical background for the rest of the session and is, therefore, presented first. Mr. Houser's paper on measuring consumer attitudes and Dr. Surface's paper showing the results of a series of studies made at the point where consumer attitude is translated into purchases of merchandise, that is, in the retail store, will follow in subsequent issues of the BULLETIN.

SOME eight or nine months back I undertook to collect opinions and data bearing on the trends of consumption in recent years. The supply of opinions, I soon learned, was ample. Unfortunately, many of them appeared to be expressions of preconceived theories of what people ought to want; and others seemed to be strongly influenced by self-interest —wish-fulfillments, they might be called. The supply of facts, or even of reasonable estimates, on the other hand, turned out even smaller than might have been anticipated.

This last remark is far from being intended to disparage the work of competent investigators, particularly Nystrom and King, who have made notable contributions to our factual knowledge of consumption and of retail sales. Nor is it intended to depreciate the great value of the Census of Distribution taken for the first time in 1930, a large undertaking which was intelligently planned and has been well handled throughout. My complaint is only that such efforts have been too few. They have not yet brought us to the point where we can look backward over a period of years and perhaps pick out trends which may reasonably be projected a little distance into the future.

Yet the urgent necessity of attaining a better understanding of consumers' demands can scarcely be questioned. These demands are the prime movers of all economic activities. They not only determine the salability of the immense variety of consumers' goods, but reach out through consumers' goods into the even larger field of producers' goods and dominate operations seemingly far removed from their influence. Consumers play the tune to which all trade and industry must dance. The penalty for any business enterprise that persistently fails to catch the tune is bankruptcy. The penalty for an economic organization which disregards the tune is a disastrous breakdown.

The reigning fashion at this moment prescribes that the responsibility for the present depression shall be placed on the war, reparations, tariffs, maldistribution of gold, or what have you, always excepting the possibility of mistakes by business executives. Reluctantly I begin to suspect that we might profitably search for causes nearer home. Furthermore, it seems to me indispensable to full recovery that business should look farther ahead and become better prepared to adapt itself promptly to the powerful underlying trends of consumers' demands.

Another group for whom this subject should have a special interest consists of the exponents of master planning of economic life. Any scheme of control over production, regardless of its details, obviously implies a corresponding degree of certainty as to demand. One might expect to find, therefore, that at least one of the master-planners had paused from his exhortations long enough to investigate the nature and the ramifications of consumers' wants in today's mode of living; and perhaps to reflect on the practicality of forecasting them precisely or controlling them. So far as I can find, however, that basic question has been conveniently ignored.

If studies of consumption trends are to get us anywhere, it seems to me they must have three characteristics:

1. They must be *comprehensive*. It is a commonplace by this time to say that articles offered to consumers come into competition not only with closely similar articles but with many others serving somewhat the same purpose. An ice-cream manufacturer recently explained to me that his most dangerous competitors are the makers of soups and other canned goods; and he added with bitterness that they enjoy an unfair advantage in that they get their products into the stomachs of his customers before he has a fair chance. Indeed, each article competes with the entire range of goods which are constantly striving to attract consumers' dollars. Oil burners and mechanical refrigerators not only displace coal and ice but take their toll of money that might otherwise flow into automobiles, clothing, food, furniture, or somewhere else. The popularity of radios is believed to have reduced largely the sales of subscription books. Considering such facts, it seems possible that some of the earnest research devoted to laborious counts of this or that is liable to lead to some rather serious delusions, unless the findings are interpreted in the light of broad knowledge of consumption trends.

2. The studies must be directed toward *middle-period* trends. Dean Donham has recently emphasized the thought that human vision cannot reach into future generations; nor is it equal to the enormously difficult task of calculating year-to-year fluctuations; but it should sometimes be able to see dimly what is going on over periods of, say, ten to thirty years. My impression is that the broader trends of consumption begin to become visible only if we look back over similar periods of time.

3. The studies must aim to *measure* changes in demand, not merely to record personal observations or guesses. It is unnecessary to enlarge on this requirement, since everyone will agree with it—in principle.

I trust that the listing here of these desirable characteristics will not be taken to imply that this paper is about to exemplify them. They are proposed only as standards to which any study of consumption trends should conform as closely as practicable. At this stage exact data are lacking; measurements are unavoidably crude and faulty. The most to be hoped for is that a few flickering gleams of light may be thrown on questions of interest both to business men and to economists.

This paper is in the nature of a preliminary report of an attempt to ascertain how American consumers as a body have spent their money in certain selected pre-war and post-war years. The report deals only with purchases of tangible commodities for personal or household consumption. It is labeled preliminary, because the study is still going on. Its results may later be modified to some extent by findings of the Census of Distribution not yet published. However, I feel reasonably confident that subsequent corrections will not greatly affect the main conclusions here.

Previous inquiries into retail sales volume have given little usable information as to the sales of separate commodities or groups of commodities. King's latest book includes, to be sure, a valuable chapter on wholesale and retail sales of the major classes of commodities; but the break-up seems to be chiefly on the basis of sources of data and consequently does not throw much light on trends of consumer demand and related questions. Nystrom and Hoyt have utilized typical family budgets as a means of making rough apportionments of expenditures among groups of commodities; but the results obviously rest on a very uncertain foundation and, moreover, are not comparable for different years.[a]

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[a] The references in this paragraph are to (a) "The National Income and Its Purchasing Power" by Willford I. King, a publication of the National Bureau of Economic Research, 1930, (b) "An Estimate of the Volume of Retail Business in the U. S." by Paul H. Nystrom, *Harvard Business Review*, January, 1925, and (c) "The Consumption of Wealth" by Elizabeth Ellis Hoyt, a publication of The Macmillan Company, 1928.

The Census of Distribution, when its national summary of retail sales classified by commodity groups is completed, will undoubtedly supply better data for the year 1929 than have previously been available. However, in the City of Washington only 9 per cent of the retailers were able to furnish records of their sales split up by commodities. Although these stores handled approximately 50 per cent of the retail business of the city, their records can scarcely be accepted as representative of the 91 per cent of smaller stores which made the remaining 50 per cent of retail sales. If my understanding is correct, somewhat similar proportions of records may be expected in other cities and states. For this reason the figures for sales of commodities through the various channels of retail distribution, eventually to come from the Census Bureau, will not be complete or conclusive. They will be invaluable, however, as checks and correctives of estimates drawn from other sources.

The primary sources for such estimates are the figures for values and quantities of production gathered by the Census of Manufactures, the Department of Agriculture, the Bureau of Mines, the Bureau of Internal Revenue, and other branches of the Federal Government, supplemented by statistics of values of exports and imports from publications of the Department of Commerce. The secondary sources are: a great number of trade publications; books on merchandising practice; bulletins of the Harvard Bureau of Business Research, reports of the Controller's Congress of the National Retail Dry Goods Association, and other studies of retailing expenses; interviews with sales executives; and data supplied by trade associations. Information from these secondary sources gives a basis for reasonable judgments as to the proportions of various kinds of goods taken by individual consumers and as to the spread between producers' values and retail-selling values for each class of goods. When these judgments—assuming that they are somewhere near correct—are applied to the production figures supplied by the primary sources, the results should be fairly dependable estimates of consumers' retail purchases.

There is nothing novel in this method. It is simply a tedious process of collecting and reviewing the facts about some hundreds of groups of commodities and making the necessary calculations. An explanation of the procedure and of some of the tests applied to the results is supplied in an appendix to this paper.

These tests indicate that the allocations and mark-ups used in our estimates for 1929 are approximately correct. It seemed safe, then, to carry back these allocations and mark-ups, except when good reason for changing them appeared, to the earlier years studied. In this manner the tables presented in this paper and in the appendix have been prepared.

Strictly speaking, the tables show not retail sales but retail values of consumers' goods produced in the four calendar years, 1909, 1914, 1923 and 1929. That is to say, the lag between the maker's sale of a consumable product and its sale to the ultimate consumer is left out of account. This becomes an important factor wherever a large discrepancy exists between distributors' stocks of a given commodity at the beginning and at the end of a year. However, for reasons stated in the appendix, it is believed that retail values of the annual production of most commodities may safely be accepted as substantially equivalent to retail sales of the same commodities during the same year.

Table 1 on the page following sums up the results of the study here described. It should be noted at once that all values are in current dollars; therefore direct comparisons in terms of dollars, especially between pre-war and post-war figures, would be misleading.

The main point brought out in Table 1 has a particular interest for all who are engaged in distribution activities. I refer to the percentages of spread between producers' values and retail values—a term which covers not only mark-ups but all transportation and selling costs not paid by producers' as well as distributors' profits. These percentages are surprisingly near together in all the four years. No strong tendency either upward or downward is discernible. And this simple statement of fact ought to be enough, it seems to me, to silence most of the violent outcries about the alleged abuses and wastes of our system of distribution.

To be sure, distribution *is* wasteful and inefficient; so are all other processes carried on by human organizations. But many critics go much farther; they make reckless charges of extravagance; they paint heart-rending pictures of unhappy customers bowed to earth under an overwhelming and growing burden of costs of distribution. This line of poppycock is becoming tiresome. The cold truth is that for at least twenty years distribution costs, not counting the unknown but small percentages required for producers' own selling and advertising, have taken on the average slightly over one-third of the consumers' retail dollar. The stability of this proportion over a long period is in itself good *prima facie* evidence that distribution costs have not run wild. Many of us would like to see them reduced, and I am inclined to believe that a moderate decrease is actually within reach. It can be realized, however, only through patient investigation and analysis by people who understand the problem, not through ignorant outbursts.

As to the facts themselves, all of us have been misled to some extent, I think, by exceptional cases. For example, I took it for granted at the outset, on the strength of a few personal observations and the opinions of some experienced merchandisers, that retail mark-ups were generally higher in post-war than in pre-war years. But this prejudgment was incorrect; that is, it was found true of only a small number of commodities with relatively limited sales volumes. Another source of confusion has been the publicity given by the Federal Trade Commission, the Department of Agriculture, and other agencies to the distribution costs on fresh foods, which are necessarily high. It has frequently been assumed, without warrant, that similar costs are borne by manufactured products. Again, it is well known that household specialties calling for a good deal of outside selling carry a larger margin than is needed for staples, and the sales of these specialties have certainly grown rapidly in recent years. On top of that, many retailers are providing deliveries at a distance and other expensive free services formerly unheard of; and someone must pay for the added outgo. But offsetting these factors are the large sales of automobiles on a small margin and the tendency to concentrate the retailing of staples in low-cost chains. The net result, then, of all our revolutionary changes in products and in channels of distribution during the past twenty-odd years is an inconsequential modification in our over-all percentage of distribution costs.

TABLE 1
SUMMARY OF TOTAL VALUES AND SPREADS ON CONSUMERS' GOODS
(Millions of Dollars)

	1909	*1914*	*1923*	*1929*
Retail Values of Manufactured Consumers' Goods[4]	11701.1	14036.7	34640.2	40131.1
Factory Values	7969.1	9631.4	23287.5	27229.0
Total Spread	3732.0	4405.3	11352.7	12902.1
Per Cent of Total Spread to Retail Values	31.89%	31.38%	32.77%	32.15%
Retail Values of Non-Manufactured Consumers' Goods	2721.5	3247.6	6625.1	6501.1
Values at Points of Production	1295.4	1545.0	3010.6	3103.8
Total Spread	1426.1	1702.6	3614.5	3397.3
Per Cent of Total Spread to Retail Values	52.40%	52.43%	54.56%	52.26%
Retail Values of all Consumers' Goods[4]	14422.6	17284.3	41265.3	46632.2
Values at Points of Production	9264.5	11176.4	26298.1	30402.3
Total Spread	5158.1	6107.9	14967.2	16229.9
Per Cent of Total Spread to Retail Values	35.76%	35.34%	36.27%	34.81%

TABLE 2
ESTIMATED RETAIL VALUES OF CONSUMERS' GOODS PRODUCED
SUMMARIZED BY COMMODITY GROUPS
(Millions of Dollars)

	1909	*1914*	*1923*	*1929*
Total Retail Values	15861.2	18862.7	42765.3	48632.2
Foods and Beverages (Including Alcoholic Beverages)	7647.0	9298.7	16599.0	20026.6
Cigars, Cigarettes, Tobacco	532.5	618.0	1300.9	1552.0
Clothing	3522.8	3833.1	10317.9	10387.9
Transportation (Chiefly Automobiles, Accessories and Gasoline)	482.6	877.6	4369.1	5151.0
Furniture and House Furnishings	1070.4	1211.5	3514.0	4179.6
Musical Instruments and Radio	140.3	162.4	582.3	919.9
Coal and Wood	655.7	799.3	1557.4	1261.3
Hardware, Tools and Paints	147.0	165.8	467.7	547.5
Jewelry and Silverware	240.7	242.7	575.0	577.6
Drugs and Toilet Goods	252.9	308.9	874.8	1117.0
Books, Periodicals and Stationery	545.0	663.4	1306.8	1681.3
All Others	624.3	681.3	1300.4	1278.6

Table 2 breaks down the total retail values shown in Table 1 into twelve commodity groups. The totals in the two tables are somewhat different in that Table 2 takes into account rough estimates for alcoholic beverages (omitted from Table 1 because of difficulty in ascertaining mark-ups in recent years).

The total retail value of consumers' goods produced or imported in 1929, then, as we calculate it, was $48,632,200,000. Please bear in mind that we are dealing throughout only with goods for personal or household use, not with total retail sales.

Based on an analysis of the United States Summary of the Census of Retail Distribution, supplemented by the best guess we can make as to sales of bootleg liquor, we estimate the entire business of retailers of commodities at $56,000,000,000. This omits the business of hotel restaurants and of laundries, both of which are counted in the Census grand total, but which we prefer to treat as service enterprises; it adds $2,000,000,000 retail transactions known or inferred to have been left out of the Census. In order to get a figure comparable with the total reached by our procedure, it is necessary to make allowances for (1) retail sales of producers' and construction goods; (2) sales of goods acquired from customers, chiefly automobile trade-ins; and (3) billings for storage, repairs, and other services. The resultant is a figure for retail sales of consumers' goods about $1,100,000,000 below our corresponding estimate.[5] This discrepancy, though large in itself, is less than 2.5 per cent of the total. Moreover, much of it could probably be accounted for if we had adequate data for distributors' stocks at the beginning and at the end of 1929; for it is highly probable that these stocks increased considerably in 1929.

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[4] Excluding Alcoholic Beverages.

All the twelve commodity groups recorded in Table 2 show growth at each stage of the twenty-year period, excepting only a moderate loss in "Coal and Wood" and a slight loss in the miscellaneous group between 1923 and 1929. For some groups, to be sure, the growth has been painfully small; and for others, abnormally large. Yet the fact remains that fluctuations *in these inclusive groups* are less extreme than might have been expected. Two tentative deductions seem to be permissible: (1) short-term shifts in consumer demand are most likely to affect related industries within the same group (for instance, the shift from musical instruments to radios); (2) major trends in consumer demand gain momentum both more slowly and more steadily than most people imagine. This second deduction carries with it the comforting corollary that it should be possible to observe major trends in time to take advantage of them—or, at worst, to escape being buried in the debris which they leave in their wake.

The most obvious use of Table 2 is to correct certain rather absurd estimates which have become current, notably for expenditures by individuals on food, clothing, automobiles, and house furnishings, all of which have been commonly overstated.

A further explanation should be given here of the apparent discrepancy between our over-all figure for individual expenditures on transportation (chiefly purchases of automobiles, automobile accessories, gasoline and oil), amounting to $5,151,000,000, and the Census of Distribution figure for sales by retail stores in the automotive group, totalling $9,547,000,000. The latter figure includes (1) retail sales of cars and supplies for business purposes which we place (somewhat arbitrarily, it must be granted) at $2,250,000,000; (2) trade-ins, about $1,250,000,000, and (3) billings of repair and storage services, which we treat separately from commodity sales, some $900,000,000. Deducting these three items from the Census total leaves a comparable figure very close to our estimate. It seems safe to say, then, that the money spent by individual consumers in 1929 for automobiles and supplies was only one-fourth their expenditures for foods and beverages, one-half their expenditures for clothing, and slightly above their expenditures for household furnishings plus musical instruments and radios—in other words, a much less reckless outlay than has frequently been pictured.

However, we can form a clearer notion of the relations among the commodity groups by turning to Table 3 which shows per capita expenditures for each of the commodity groups in each of the four years.

Outstanding is the marked stability (in pre-war dollars) of "Foods and Beverages." To a slight extent this stability is ascribable to a slowing-up in the rate of growth of expenditures for alcoholic drinks. To a much greater extent it represents simply the universal tendency to spend increases in income, once it rises above the minimum comfort level, on other objects than food. The first and best verified of Engel's Laws of Consumption, you will recall, states in effect that a decreasing percentage of increasing income is devoted to food.

In pre-war years nearly half of consumers' purchases of commodities went into their stomachs; in post-war years, about 40 per cent. A puzzling question is why the "Foods and Beverages" expenditure per capita should have moved up so sharply from $89 in 1923 to $99 in 1929. The largest gain in this period came in meats and was apparently due to higher prices rather than increased consumption. The growing custom of eating in restaurants and doing less home cooking is no doubt partly responsible for this sizable increase.

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[5] See the appendix for a fuller discussion of these adjustments.

TABLE 3
PER CAPITA RETAIL VALUES OF CONSUMERS' GOODS

			In Pre-War Dollars[6]		In Current Dollars	
	1909	*1914*	*1923*	*1929*	*1923*	*1929*
Total Retail Values	$172.24	$190.58	$230.26	$241.03	$383.62	$401.55
Foods and Beverages	84.49	93.95	89.38	99.26	148.90	165.36
Cigars, Cigarettes and Tobacco	5.88	6.24	7.01	7.70	11.67	12.82
Clothing	38.92	38.73	55.56	51.48	92.56	85.77
Transportation	5.33	8.87	23.52	25.53	39.19	42.53
Furniture and House Furnishings	11.83	12.24	18.92	20.47	31.52	34.11
Musical Instruments and Radio	1.55	1.64	3.13	4.56	5.22	7.60
Coal and Wood	7.24	8.08	8.39	6.25	13.97	10.41
Hardware, Tools and Paints	1.62	1.68	2.52	2.71	4.20	4.52
Jewelry and Silverware	2.66	2.45	3.10	2.86	5.16	4.77
Drugs and Toilet Goods	2.79	3.12	4.71	5.53	7.85	9.22
Books, Periodicals and Stationery	6.02	6.70	7.04	8.33	11.72	13.88
All Others	6.90	6.88	7.01	6.34	11.67	10.56

A portion of the larger increase in total retail expenditures went into clothing; and another substantial proportion into furniture and other household furnishings. A much greater proportion, of course, flowed into the automotive market. However, I venture to call your especial attention to the fact that our national passion for automobiling was *not* indulged at the expense of the clothing and furniture industries, as has been carelessly alleged. On the contrary, we can scarcely avoid the conclusion that American consumers were easily able to handle their automobile expenditures in the years 1923 and 1929 without stinting their purchases of other commodities.

The same set of estimates is presented in a different perspective in Table 4. Expenditures on the twelve commodity groups are here expressed in percentages of King's figures for realized incomes of individuals in the United States. These percentages offer striking evidence of the extraordinarily high level of prosperity reached in 1923 and 1929. Never before in the world's history, we may safely assert, has any large body of people been able to eat substantially all they wanted and yet spend only a little more than one-fifth of their combined incomes on food and drink.[7] Expenditures on transportation, heavy as they were, took only 5 per cent to 6 per cent of individual incomes —surely a rather slender foundation for the moralizings on this form of alleged extravagance by some of our magazine writers.

TABLE 4
PERCENTAGES OF RETAIL SELLING VALUES TO TOTAL REALIZED INCOMES OF INDIVIDUALS
(Based on Table 2)

	1909	*1914*	*1923*	*1929*
Total Realized Incomes[8] (Millions of Dollars)	29,605.	35,657.	74,337.	94,000.
Per Cent of Total Retail Selling Values to Total Realized Incomes	53.58%	52.92%	57.53%	51.74%
Foods and Beverages	25.83%	26.09%	22.33%	21.30%
Cigars, Cigarettes and Tobacco	1.80%	1.73%	1.75%	1.65%
Clothing	11.90%	10.75%	13.88%	11.05%
Transportation	1.63%	2.46%	5.88%	5.48%
Furniture and House Furnishings	3.62%	3.40%	4.73%	4.40%
Musical Instruments and Radio	.47%	.46%	.78%	.98%
Coal and Wood	2.22%	2.24%	2.10%	1.34%
Hardware, Tools and Paints	.50%	.47%	.63%	.58%
Jewelry and Silverware	.81%	.68%	.77%	.61%
Drugs and Toilet Goods	.85%	.87%	1.18%	1.19%
Books, Periodicals and Stationery	1.84%	1.86%	1.76%	1.79%
All Others	2.11%	1.91%	1.75%	1.36%
	53.58%	52.92%	57.54%	51.74%

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[6] 100 is here taken as the price index of both the pre-war years and 166.6 as the price index of both the post-war years. These indexes are sufficiently accurate for rough measurements.

[7] Comparable with 36 per cent of British income spent on food and drink in the years 1924-27, based on estimates by A. E. Feavearyear in the *Economic Journal,* March, 1931; with 44 per cent of German income spent on food, drink and tobacco in 1913, based on estimates by Ernst Wagemann in "Economic Rhythm" published in the U. S. in 1930; with 46 per cent of the average Leningrad worker's budget required for food, as claimed by Soviet authorities and published in an article by Alzada Comstock in *Current History,* January, 1930; and with allowances in American wage earners' budgets prepared by the National Industrial Conference Board of 43 per cent for food in pre-war years and 33 per cent in post-war years.

[8] As estimated by King ("The National Income and Its Purchasing Power") for 1909, 1914 and 1923. The figure for 1929 is based on first rough approximations by King, Ingalls, and *Sales Management.*

It is interesting to note the remarkable steadiness of spendings for many of the commodity groups, particularly "Cigars, Cigarettes and Tobacco" and "Books, Periodicals and Stationery." These two groups are running a neck-and-neck race; and it may be pleasing to learn that at last accounts reading matter was maintaining a slight lead.

A curious feature of this table is the big jump in 1923 in the proportion of consumers' takings of tangible goods to their total incomes—from a pre-war percentage of 53 per cent to about 57.5 per cent in 1923 and then back to 51.7 per cent in 1929. This showing checks fairly well with King's corresponding percentages (making allowance for the fact that his figures include retail sales of producers' goods and some other items omitted from our figures). King's percentages are: 1909, 61.8 per cent; 1914, 61.1 per cent; 1923, 67.6 per cent; and 1928 (1929 not given), 64.7 per cent. There can be no doubt that 1923 was a big retail year, presumably because the gaps left by the preceding years of depression were being filled.

On the other hand, the 1929 proportion of income flowing into retail channels appears unusually low. In this respect it resembles 1916 and 1920, as indicated by King's percentages.[9] Making a hasty generalization, we may suspect that in big-income years people put their surplus dollars into other forms than commodities.

As an example of possible uses of the data here given and supporting data, I venture to offer Table 5. It may best be defined as an exceedingly tentative attempt to measure the "area of caprice" in present-day consumption; this term is meant to signify the amount and proportion of consumers' demands which are peculiarly liable to rapid fluctuations.

The commodities belonging in this area would appear to be: (1) "superfluities," that is, goods which most persons can get on without, and feel no great personal or social loss; (2) "style goods," that is, those in which fashion plays a leading role; and (3) "durables," that is, those which normally remain in use for some years and may easily be made to serve longer. These descriptive words, let me explain, are employed here solely for convenience and are not intended to imply any judgments on the social values of these articles.

Table 5 presents an allocation of goods to these three categories. Obviously the allocation is in part arbitrary; and anyone is quite at liberty to make such alterations as he chooses. I doubt, however, whether any changes within reason would bring about great modifications of the percentages toward the bottom of the table.

TABLE 5

SUMMARY OF RETAIL VALUES OF PRODUCTS PARTICULARLY AFFECTED BY CONSUMERS' CAPRICE

(Millions of Dollars)

Class of Product	*1909*	*1914*	*1923*	*1929*
GRAND TOTAL	2704.0	3249.1	10982.1	12568.2
"Superfluities"				
Jewelry and Silverware (50%)	120.4	121.4	287.5	288.8
Toilet Articles and Preparations	86.5	109.7	423.6	513.6
Musical Instruments and Radio	140.3	162.4	582.3	919.9
Recreational Goods[10]	178.9	183.5	488.1	464.5
TOTAL OF "SUPERFLUITIES"	526.1	577.0	1781.5	2186.8
"Style Goods"				
Women's Clothing, Knit Goods, Silk Manufactures (50%)	525.6	648.1	2110.0	2271.7
Millinery	179.4	207.5	431.7	488.3
Fur Goods	121.6	88.4	360.0	503.6
TOTAL OF "STYLE GOODS"	826.6	944.0	2901.7	3263.6
"Durables"				
Automobiles, Parts, etc.[11]	344.1	611.1	3012.7	3270.4
Furniture and Household Appliances[12]	886.8	995.6	2998.7	3558.6
Jewelry and Silverware (50%)	120.4	121.4	287.5	288.8
TOTAL OF "DURABLES"	1351.3	1728.1	6298.9	7117.8
Per Cent to Total Retail Values	17.05%	17.23%	25.68%	25.84%
"Superfluities"	3.32%	3.06%	4.17%	4.50%
"Style Goods"	5.21%	5.00%	6.78%	6.71%
"Durables"	8.52%	9.16%	14.73%	14.64%
Per Cent to Entire Realized Income	9.13%	9.11%	14.77%	13.37%
"Superfluities"	1.78%	1.62%	2.40%	2.33%
"Style Goods"	2.79%	2.65%	3.90%	3.47%
"Durables"	4.56%	4.85%	8.47%	7.57%

These percentages are striking, partly because they show such close correspondences of the two pre-war years with each other, and of the two post-war years with each other; and partly because they seem to reveal so important a change between the pre-war and the post-war periods. You will note that the "area of caprice" occupied 17 per cent of pre-war retailing against 25 per cent after the war; or, expressed in percentages of national incomes, 9 per cent against 14 per cent; or, expressed in money of 1929, somewhere near four to five billions of dollars.

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[9] "The National Income and Its Purchasing Power," p. 376.

[10] Includes: Toys, Cameras, Sporting Goods, Arms and Ammunition, Fireworks, Nursery and Greenhouse.

[11] Includes: Carriages and Wagons, Ships and Boats, Motorcycles and Bicycles, Aircraft.

[12] Includes: Furniture, House Furnishings, Electrical Appliances, Crockery, China and Glassware, Stoves and Ranges.

Here is a sweeping and powerful trend of consumption, and it cannot fail to have far-reaching effects. It goes far toward explaining the length and severity of our economic storms of 1921 and 1930. In the last-named year, particularly, you will recall with what pleasure and hope we all listened through the early months to the assurances of our best statisticians that inventories were low; and, therefore, consumers' renewed buying would soon start the wheels moving again. Unfortunately, this conclusion was built on an unsound assumption. Consumers' buying instead of picking up, slipped lower and lower. To this day it has shown no plain signs of that spontaneous resurgence which is the natural turning point of a business depression.

What was the trouble with this reasoning? Apparently it was nothing visible—even to expert eyes. Dr. Warren M. Persons, recognized by all as a leading and highly competent authority, writing in November, 1930, and basing his opinion mainly on the normal expectation of soon reaching the level at which consumers will buy more freely even if they have to use up their savings, forecast that the low point of the depression would be passed not later than March, 1931.[13] I am not bringing up this forecast, which obviously went wrong, with any thought of ridiculing it; to the contrary, I believe it was reasonable and well-founded on the *known* facts. It constitutes, however, one piece of evidence that *new* factors operating outside the field so far statistically surveyed are today at work—or if not entirely new, at any rate factors that have gained new strength in recent years.

One such factor is the indicated extension of the "area of caprice." If it be true that more than one-quarter of consumers' retail purchases in prosperous years could easily be given up or deferred for some years—and remember that a large fraction of the remaining three-quarters would undoubtedly fall, if our analysis were more thorough-going, into the same classification—then it follows that the resistance level to reductions in consumption is much lower than we have previously imagined. This is another way of saying that the tendency is toward greater swings, both up and down, in the business cycle.

Nor is there any likelihood of a limitation in the "area of caprice." If it did occur, it would be indeed an unhappy solution of the problem of avoiding catastrophic depressions. For freedom of consumers' choice, including caprice in taking or rejecting many varieties of goods, is an essential concomitant of consumers' prosperity. The outlook, then, if things go on as they are, is for greater heights of prosperity always followed by deeper and blacker depressions.

Perhaps a way out can be found. Personally, I have little hope of its being discovered for us by some group of inspired seers who will be miraculously assembled and appointed to a governmental control board. It seems to me more sensible to try to develop a new business technique adapted to the new economic situation created by the probably accelerating growth of the "area of caprice." But this is another story which leads far beyond the scope of this paper.

If the effort to measure consumers' retail purchases here described has any value, it will arise chiefly from two closing suggestions.

First, it should be possible, if more detailed and more accurate data extending over a longer period were available, to make studies of consumption trends along various lines which would meet the standards proposed near the beginning of this paper; and such studies would permit business management to look ahead—to make long-distance plans and to invest capital with better assurance of returns. The drawback now is the lack of adequate data.

The second suggestion is that gathering the needed data is a proper function of the U. S. Department of Commerce. The splendid record of efficiency and progressiveness which this Department of the Government already has to its credit justifies us in asking that it take over this additional responsibility. Certainly commercial business should have at least as much fact-finding help as is now supplied to finance and to agriculture. We should all give our earnest support to whatever moves in this direction may be approved by the officials of the Department of Commerce.

American business needs badly—needs more than it needs any other single tool I can think of—a perpetual inventory of the American economic system. The kind of inventory I am thinking of would keep us all continually informed as to consumption trends and distributors' stocks, on one side, and as to producers' capacity and stocks, on the other side. It would enable American business, in my judgment, to steer clear of some of the worst pitfalls into which we have fallen in the last few years.

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[13] Persons, Warren M., "Forecasting Business Cycles," New York, John Wiley & Sons, 1931, Part I.

Appendix

The condensed description which follows of the steps taken in preparing the estimates here given may be useful in forming an opinion of their reliability.

1. *Selection of Years for Study.* Since a major purpose was to look for indications of trends over a term of years, it seemed advisable to compare pre-war with post-war purchases and to omit the abnormal years during and immediately following the war. On the whole, 1909, 1914, 1923 and 1929 seemed most suitable. It may be objected, with some reason, that the two post-war years were characterized by unusual activity and free spending; but an offsetting consideration is the fact that because both were prosperous years, a comparison between them should indicate recent trends relatively undistorted by minor fluctuations.

2. *Classifying Producers' Values in Comparable Groups.* During the twenty-year term of the study changes in conditions (for example, removing the manufacture of alcoholic drinks from a legal to an illegal status) and changes in census classifications have combined to make necessary considerable regrouping in order to get comparable figures. Some estimating has been required also in order to bring the deductions for exports and additions for imports into line with census groupings.

3. *Making Percentage Allocations of the Products in Each Group to Consumers', Producers' and Construction Goods.* The entire output of some of the groups clearly belonged in only one of these three general classes. The destinations of the products of certain other groups—including some of the most important, such as iron and steel, coal and farm products—have been traced with sufficient accuracy to permit allocating their output with considerable confidence. Most of the remaining groups on careful examination leave only small margins for guesswork. The degree of probable error in the totals is indicated by a difference of less than 5 per cent between an estimate made under the direction of Mr. Edward R. Dewey, Assistant to the Director, U. S. Bureau of Foreign and Domestic Commerce, of the value at point of production of products entering into household consumption and the corresponding estimate independently made for the present study.[14]

4. *Assigning to Each Group of Consumers' Goods the Percentage Most Fairly Representative of the Entire Spread between Producers' Values and Retail-Selling Values.* Here, again, ample data as to costs and profits of wholesalers and retailers could be had for many groups. For other groups the problem was complicated by the inclusion under one head of a variety of articles distributed through several channels. Though it would be out of the question to expect accuracy in detail, it is believed that the likelihood of gross miscalculations of mark-ups and other distribution charges is small. An especial effort was made to ascertain what changes in customary mark-ups have been introduced during the past twenty years; and such changes when discovered have been taken into account. So far as could be learned, however, these changes were much slighter than have sometimes been assumed.

5. *Calculating the Retail Value of the Percentage of Each Commodity Group Allocated to Consumers' Goods.* Thereafter such revisions and adjustments were made as seemed called for after comparisons with any other estimates available.

6. *Reclassifying the Commodity Groups to Bring Them into Closer Conformity with Merchandising Practice and to Facilitate Later Comparison with Census Figures.* For convenience the classification of retail sales of commodities employed in the trial Census of Distribution in 1926 was adopted for our regrouping.

It is evident that the possibilities for minor errors of judgment in the procedure just described are numerous; in fact, so numerous and so much subject to blind chance as to justify hopeful reliance on the saving grace of the principle of distribution of errors.

A more serious possibility, since there is no hope of its being offset, is inherent in the unavoidable assumption that the output of consumers' goods in any one year measures approximately the retail sales of such goods in the same year. This assumption would be close enough to the truth for practical purposes if stocks at the beginning and at the end of the year were nearly equal. In 1929, for instance, the U. S. Department of Commerce index of stocks of a variety of manufactured goods stood at 122 at the beginning and 119 at the end, certainly not a very big change. The index figure for foodstuffs, however, was 97 at the beginning and 110 at the end.[15] It is common knowledge that retailers' inventories at the end of 1929 were generally above normal.

On the other hand, it must be observed that both makers' stocks and trade stocks of consumers' goods are customarily kept in much closer relationship to current demand than are raw materials and other producers' goods; also, that stocks of consumers' goods are likely to be low at the year-end. Consequently, the discrepancies between output and retail sales in any one year would probably affect markedly only a few of the commodity groups.

One other point worth mentioning is the fact that our percentages of allocation and of mark-up have been designedly held uniform for all the years studied, except in the relatively small number of instances in which modifications were clearly called for. It follows that whatever errors of judgment have been made are a constant quantity and do not, therefore, wholly invalidate conclusions as to underlying trends.

Our first estimates were worked out for the year 1929 and were then revised in the light of the Census of Distribution figures. They gave us a total volume of retail sales of consumers' goods of approximately $48,600,000,000. Included in this total is a guess—obviously it can be nothing more—that bootleg sales of alcoholic liquors in that year were $2,000,000,000. Putting this item to one side for the moment, we have left 46.60 billions of consumers' goods which enjoy a legal status entitling them to be accorded recognition in governmental statistics.

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[14] Mr. Dewey's original estimate appeared in *Domestic Commerce,* July 30, 1931. The percentage of discrepancy here stated takes into consideration certain specific items included in Mr. Dewey's figures but excluded from ours.

[15] Index figures from *Survey of Current Business,* Annual Supplement, 1931.

At first glance, this figure may appear seriously out of line with the grand total of retail sales announced by the Census Bureau, which approximated $53,000,000,000. But these two figures are not comparable. The following adjustments are called for:

Census Total (in millions of dollars)		53,000
(Of which 3,000 consists of retail sales through other channels than retail stores).		
Deduct sales of hotel dining rooms and sales of laundries and dyeing and cleaning establishments, as being more properly treated as services rather than as commodities		1,000
		52,000
Add allowance for retail sales not covered in Census		2,000
Revised Total of retail sales, excluding alcoholic beverages		54,000
Deduct (percentages of retail-*store* sales):		
Producers' and construction goods sold at retail (12 per cent)	6,000	
Repair and storage services not included in retail prices of commodities (2 per cent)	1,000	
Trade-ins and other goods received from customers (3 per cent)	1,500	8,500
Net Sales of Consumers' Goods at Retail		45,500

The resultant of these adjustments is about $1,100,000,000 below our corresponding figure. This discrepancy may probably be accounted for in part by the excess of retailers' carry-over at the end of 1929 over their carry-over at the end of 1928. Making an allowance for this factor, the two figures are close enough to justify considerable faith in the approximate correctness of the allocations and mark-ups used in making the estimate. However, the adjustments require further explanation.

Omissions. One item included in our figure but only partly covered by the Census of Distribution consists of retail sales of milk (in fluid form) which we calculate to be approximately $1,400,000,000. The United States Summary of Retail Distribution shows sales by milk dealers of $223,000,000; and explains in a footnote: "This classification is incomplete due to the obvious difficulty in locating milk dealers. Steps are now being taken to correct this condition." A large but unknown amount of milk is distributed through dairy-product stores, groceries and delicatessen stores. We can do no more than hazard a guess that the volume of milk sales omitted from the Census total is considerably more than the $200,000,000 estimated by the Census Bureau. Other dairy and farm products, also, are customarily sold, to a large, aggregate volume, directly to consumers by farmers or through market and roadside stands; and a great part of this large trade certainly escaped the census-takers. Peddlers' sales, also, are omitted; inasmuch as the Census of Occupations for 1920 (the 1930 figure is not yet issued) shows over 50,000 "hucksters and peddlers" it seems plausible that their total sales in 1929 must have run into some hundreds of millions. Another item, not yet announced by the Census of Wholesale Distribution but one which may safely be assumed to be large, consists of sales at retail made by wholesale establishments. However, this item is thought by the Census Bureau to be approximately offset by the incidental wholesale business of establishments classified as retailers; for this reason it has been disregarded in this estimate of omitted retail sales. The retail values of subscriptions and sales of newspapers and periodicals, of books and pamphlets, and of stationery sold to consumers are calculated in our estimate to be about $1,650,000,000. These commodities are represented in the Census of Retail Distribution summary mainly by $240,000,000 of sales through book stores and news dealers. If we add to the foregoing the hundreds of millions of direct sales to consumers through house-to-house canvassers; and on top of all, the inevitable oversights and failures to obtain data attendant upon a first canvass of so intricate and immense a field, it would appear that two billions is a very moderate estimate of retail sales unrecorded in last year's census.

Producers' and Construction Goods Sold Through Retail Stores. Detailed analyses of the figures for sales of commodities supplied by the preliminary Census of Distribution of 1926 (in eleven representative cities) and of corresponding figures recently issued for the City of Washington, reveal that in both cases about 11 per cent of sales of retail stores consist of producers' and construction goods. Making allowance for the high probability of such sales forming a larger proportion of retail volume in farming communities, we have arbitrarily used 12 per cent for the present purpose. This percentage remains to be checked against forthcoming census publications of similar breakdowns for other territories. However, it seems reasonable.[10]

Repair and storage services consist chiefly of operations in garages and other automobile establishments, augmented by repairs of furniture, household appliances, jewelry, radios, and so on, which are separately billed and not, therefore, included in the retail mark-ups on commodities. The percentage has been calculated from records supplied in the Census "Analysis of Commodity Breakdown" for the City of Washington.

Sales of trade-ins play an especially large part in automobile retailing. The number of used cars accepted in trade by automobile dealers (including trade-ins on an increasing proportion of used car sales) was rapidly growing in the years prior to 1929, as may be seen from the following table extracted from a release of the National Association of Finance Companies:

	Used Cars Sold	*Ratio of Used to New Sales*
1922	1,685,588	68.9%
1923	2,594,557	68.4%
1924	3,025,259	91.2%
1925	3,791,740	98.8%
1926	3,563,482	89.4%
1927	3,552,731	118.5%
1928	4,426,621	117.0%
1929	5,601,200	121.4%

At an average selling price of, say, $225 the total volume of business in used cars in 1929 would have been slightly over $1,250,000,000, equivalent to a little more than 20 per cent of the total reported sales of dealers in motor vehicles. This figure is in line with the percentage of used car sales of automobile dealers in the City of Washington and with the estimates of experienced men in the industry. The balance of our allowance under this head, totaling $1,500,000,000, is made up of sales of second-hand stores, being $153,000,000, and of an estimate for used furniture and some other commodities acquired as purchases or as trade-ins by dealers in new goods.

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[10] The report of the Federal Trade Commission on "National Wealth and Income," issued in 1926, estimates retail sales in 1923 of articles "for other than personal consumption" at $5,900,000,000. If we apply to our retail values of consumers' goods in 1923 the percentages above used in adjusting the Census of Distribution figures, we get an estimate for retail sales of producers' and construction goods in 1923 of $5,600,000,000. The two estimates appear to be in close agreement.

Another test of the plausibility of the estimates here presented may be made by comparing them with King's[17] year-by-year estimates of total values of commodities sold by retail merchants to their customers. Although no detailed explanation of the computation of these latter estimates is supplied, they appear to have been carefully made by substantially the same methods herein described.

The latest year for which King has given a figure is 1928; his preliminary estimate for that year is $57,867,000,000. If we apply to this amount the indexes of 1928 and 1929 for department store sales, as computed by the Federal Reserve Board, we get a rough estimate for 1929 of $59,000,000,000, which may be accepted for the present purpose as somewhere near King's probable result.

Following is a comparison of our figures for retail values

TABLE 6

ESTIMATED RETAIL VALUES OF CONSUMERS' GOODS PRODUCED

SUMMARIZED BY MAJOR COMMODITY GROUPS AND SUB-GROUPS

(Millions of Dollars)

	1909	*1914*	*1923*	*1929*
FOODS AND BEVERAGES	7647.0	9298.7	16599.0	20026.6
Groceries	1560.5	1839.6	3496.8	3856.6
Meat and Poultry	1815.6	2286.2	3322.8	4832.0
Milk, Butter, Cheese and Eggs	1208.9	1439.2	2999.1	3479.1
Confectionery and Ice Cream	183.0	309.2	908.6	1042.8
Non-Alcoholic Beverages	62.1	83.4	319.7	365.3
Bakery Products	471.4	584.1	1333.8	1793.8
Vegetables[18]	436.6	1100.6	1383.3	1302.0
Fruits and Nuts	401.3		1152.9	1199.0
Fish and Other Sea Foods (fresh)	69.0	77.0	182.0	156.0
Alcoholic Beverages	1438.6	1579.4	1500.0	2000.0
CIGARS, CIGARETTES AND TOBACCO	532.5	618.0	1300.9	1552.0
CLOTHING	3522.8	3833.1	10317.9	10387.9
Women's Clothing	643.2	790.8	2475.0	2930.0
Clothing, Men's and Boys'	756.6	712.6	1830.7	1507.4
Boots and Shoes, Other Footwear	740.5	829.1	1713.9	1620.0
Men's Furnishings	259.6	292.4	632.4	627.6
Millinery	179.4	207.5	431.7	488.3
Fur Goods	121.6	88.4	360.0	503.6
Hats and Caps	132.3	128.6	260.7	249.6
Dry Goods and Notions	106.5	94.9	367.1	413.6
Cotton Goods	93.0	105.4	305.0	236.7
Silk Manufactures	118.4	152.5	463.3	426.7
Woolen and Worsted Goods	33.5	30.9	85.6	70.0
Knit Goods	289.6	352.9	1281.7	1186.7
Gloves	48.6	47.1	110.8	127.7
TRANSPORTATION	482.6	877.6	4369.1	5151.0
Automobiles	166.1	414.9	2674.9	2951.2
Gasoline and Oil	88.5	166.5	940.4	1389.4
Automobile Parts and Accessories	61.0	124.8	616.0	691.3
Motorcycles and Bicycles	11.5	23.9	36.9	27.7
Carriages and Wagons	144.3	133.6	66.6	49.6
Ships and Boats	11.2	13.7	32.3	33.9
Aircraft		.2	2.0	8.0
FURNITURE AND HOUSE FURNISHINGS	1070.4	1211.5	3514.0	4131.4
Furniture (house)	328.4	381.7	1248.7	1414.5
House Furnishings	280.3	302.1	834.3	902.6
Electrical Appliances and Supplies	96.9	127.5	365.2	705.9
Household Supplies	177.9	209.4	502.6	556.5
Crockery, China and Glassware	96.3	88.0	261.9	247.0
Art Goods and Supplies	5.7	6.5	12.7	16.3
Stoves and Ranges	84.9	96.3	288.6	288.6
MUSICAL INSTRUMENTS AND RADIO	140.3	162.4	582.3	919.9
Musical Instruments	140.3	162.4	486.7	304.5
Radio			95.6	615.4
COAL AND WOOD	655.7	799.3	1557.4	1261.3
Coal	622.7	759.3	1470.4	1211.3
Wood	33.0	40.0	87.0	50.0
HARDWARE, TOOLS AND PAINTS	147.0	165.8	467.7	547.5
Hardware	66.4	73.6	213.7	204.6
Tools	6.7	7.0	17.1	13.7
Paints and Varnishes	73.9	85.2	236.9	329.2
JEWELRY AND SILVERWARE	240.7	242.7	575.0	577.6
Jewelry	173.3	181.8	436.8	430.3
Silverware	67.4	60.9	138.2	147.3
DRUGS AND TOILET GOODS	252.9	308.9	874.8	1117.0
Drugs, Chemicals and Preparations	166.4	199.2	451.2	603.4
Toilet Articles and Preparations	86.5	109.7	423.6	513.6
BOOKS, PERIODICALS AND STATIONERY	545.0	663.4	1306.8	1681.3
ALL OTHERS	624.3	681.3	1300.4	1278.6
GRAND TOTAL	15861.2	18862.7	42765.3	48632.2

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[17] "The National Income and Its Purchasing Power," Chapter XVIII.

[18] "Fruits and Nuts" combined with "Vegetables" in 1914 figure.

of consumers' goods, excluding alcoholic beverages, with King's figures:

(In millions of dollars)

	King's Estimate	*Our Estimate*	*Ratio to King's Estimate*
1909	18,300	14,423	79.0%
1914	21,790	17,284	79.3%
1923	51,240	41,265	80.5%
1929	59,000[19]	46,632	79.0%

The steadiness of the ratio suggests that a uniform explanation for the discrepancy of some 20 per cent may be found. Part of the explanation lies in the fact that King's estimates include producers' and construction goods which come to about 12 per cent of all retail sales. Another factor is an apparent excess, amounting to 8 to 9 per cent, of the figure for 1929 (assumed) over the probable total of retail sales based on the Census of Distribution.

However, it would require an item-by-item comparison to determine whether this suggested explanation is adequate or whether the constant discrepancy between King's estimates and our own arises from other sources.

As a further test, Table 6, a summary in more detail of the estimates for major commodity groups and sub-groups, is submitted for examination and criticism. It is hoped that any who are interested will call on the writer for additional explanations and will propose whatever corrections seem to be called for.

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[19] Assumed as a probable approximation; see text.

Annual Business Meeting

THE Annual Business Meeting of the Taylor Society was called to order at 4:30 P.M., December 3, 1931, in the Small Ball Room of the Hotel Pennsylvania, New York. The meeting was opened by President Kendall and the presence of a quorum recorded. Reading of the minutes of the previous meeting was waived. The Managing Director then made an informal statement concerning the affairs of the Society and expressed the intent to send Mrs. Frederick W. Taylor, in the name of the Society, an appreciative response to a message of greeting which had come from her. The report of the Treasurer was received, placed on file and mimeographed copies distributed among those present at the meeting.

The committee which had opened and counted letter ballots for the election of officers reported the result of the election as follows:

Officers

President and Director (1 year): Sanford E. Thompson, President, The Thompson & Lichtner Co., Inc., Boston.

Vice President and Director (2 years): W. H. Leffingwell, President, W. H. Leffingwell, Inc., New York.

Treasurer and Director (1 year): Edward W. Clark, 3rd, E. W. Clark & Co., Philadelphia.

Directors (2 years): George E. Frazer, Partner, Frazer and Torbet, Chicago; Mary B. Gilson, Department of Economics, University of Chicago, Chicago.

Nominating Committee

The following were selected as a Nominating Committee for the ensuing year: H. P. Dutton, Chicago; Norman C. Firth (Chairman), New York; King Hathaway, New York; Milton C. Herrmann, New York; G. E. Schulz, New York.

Message from Mrs. Taylor

The message which had been received from Mrs. Taylor read as follows:

> From Boxly go cordial greetings on the occasion of the Twentieth Anniversary of the founding of the Taylor Society. I have, I think, a growing realization of the fundamental way in which the Society is carrying on the high tradition of Scientific Management. It would certainly be a great satisfaction to Mr. Taylor, as it is to me, to see the way in which his collaborators, his friends and those who have become imbued with the importance of his teachings are co-operating to carry on the work which he initiated. Especially in this time of world-wide stress it is especially gratifying to see the way in which individually and collectively the members of the Taylor Society see a way out of our difficulties in the widening application of Scientific Management.
>
> I congratulate you one and all for what has already been accomplished and devoutly pray for the continued usefulness of the Society.

Some Aspects of National Stabilization[1]

A Comparison of Industrial Planning, Credit Control and Fiscal Policy as Means of Stabilization

By VIRGIL JORDAN

Economist, McGraw-Hill Publishing Company, New York

I

STABILIZATION within any national area—which I take to mean the maintenance of continuous and increasing consumption of the goods and services which that area is able to produce or buy abroad with its labor—is possible only on two conditions: complete international co-operation, or carefully controlled isolation. The first is an abstract ideal that will never be realized, at least in the form in which it is conceived today, with some sort of international currency and some super-national commerce commission regulating the free international flow of goods and services.

The fundamental forces point in the opposite direction. There is evident a definite trend toward intensified nationalism, which is the first expression of an underlying process of decentralization that marks the disintegration of capitalism in its present form. International trade and borrowing will be of diminishing importance relative to domestic trade and investment in every country, and many raw-material and skilled-labor monopolies upon which international trade has been built will be broken by synthetic chemistry, as indigo, nitrate, silk have been, and by universal mechanization. Economic differentials dependent upon geographical interests will ultimately cease to be of importance and the motives of international co-operation will lose their force. This is still a long way off; in the meantime the problem of stabilization can be profitably approached only from the national point of view. This does not preclude international intellectual contact, intercourse and co-operation, the chief result of which, however, will be to promote more effective stabilization nationally, not to foster actual international economic co-operation.

Stabilization on a national basis is perfectly possible, but it requires centralized control over exports and imports and foreign investment. Putting it the other way around, national stabilization is impossible without such control, and with the existing freedom to oversell or overbuy, overlend or overborrow abroad. This is because national stability is now completely dependent upon certain credit and banking conditions which cannot be effectively controlled without prior control over external influences arising from international trade and finance.

Such control is now being exercised by every European country. It will not be applied to any large extent by the United States because of the banker and investment interests dominant in a creditor nation. Defaults and moratoria during this depression may wipe out a large part of our creditor position, check the increase of foreign investment and permit better balancing of trade; but the probabilities are that we shall have at least one more inflationary boom in which (1) we shall give away a lot more goods to the world on credit and (2) maintain a high tariff to prevent repayment. Banker interests will support the former; industrial and labor interests the latter.

We may look, therefore, for a long period of casuistic compromise between certain superficial forms of international co-operation largely dictated by financial and exporting interests, and a contradictory, unintelligent nationalism reflected in crude tariff policies dictated by domestic industries and labor organizations. This compromise will be further complicated henceforth by the problem of gold reserves and devaluation of currencies. These are being and will be used as weapons of political and economic nationalism for the purpose of establishing certain trade areas and groupings like Franco-Europe and the British Empire, and the prospects of any effective international currency or banking co-operation to correct these complications are remote. Few nations now can handle even their internal banking problems successfully.

The result is that for a long time domestic efforts at stabilization must be carried on in face of unstable and disturbing influences from abroad. The consoling thing is that these influences are likely to diminish naturally in the course of time. In the meantime it will be difficult to accomplish much, but something can be done to diminish their force.

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[1] Paper presented before a meeting of the Metropolitan Section of the Taylor Society, New York, November 12, 1931.

II

Before we can understand what this is, it is necessary to explore the idea of stabilization a little more deeply. The desirability of stabilization is a little too much taken for granted in discussion of it. I am a stabilizer, but I believe that the importance or meaning of stabilization cannot be fully understood until we get a clearer idea of the significance of instability—its function in our economic set-up. The real problem of stabilization is how to get the advantages of instability without its disadvantages.

Wide business fluctuations are obviously a symptom of defects in our economic institutions; but what is not so obvious is that they are a rough—too rough—way of remedying the consequences of those defects. The central defect of capitalism as we now know it is the lack of any systematic or successful mechanism of income distribution—of dividing the product of industry between wages and profits. The reason why this is serious is that it prevents a balance between saving and spending, consumption and production, upon which stability depends.

Modern industry—and agriculture too—based not on labor but on utilization of an almost free fund of solar energy accumulated in coal, oil and water power, is so productive as compared with human and animal energy dependent on food, that prices would disappear and profits, wages and capital values could not be maintained without some sort of systematic, deliberate or unconscious, sporadic sabotage by employers, financial interests and labor. But despite all this sabotage, productivity still increases at such a rate that prices, profits and return on capital can be maintained only by an equally rapid increase of consumption and consumer purchasing power. A larger and larger part of the product must go to those who spend their income, immediately or in advance (by consumer credit), and the rest must reinvest their surplus income more and more promptly (and continually in excess of their savings, through bank credit) in order to retain it. And, further, this reinvestment must be continuously or periodically confiscated or transformed into consumer purchasing power without return in order to keep that consumption up to production. Capitalism in every highly developed industrial nation is essentially a system under which we must continuously or periodically eat our cake in order to have it.

Ideally, the conditions of the problem set by modern industrial productivity require for stability one of two things: first, a continuous expansion of credit media of exchange in keeping with the energy used in production, as measured by man-hours or kilowatt-hours, until labor and industrial capacity are fully employed, that is, up to the point where inflation begins. This means a stable price level, which indicates that consumption and production as a whole are in balance. The alternative is some systematic means of converting surplus purchasing power into consumption without increasing productive capacity—by a combination of appropriate taxation and public borrowing, using the proceeds for public services of non-competitive character.

Neither of these conditions is fulfilled under the controls that exist in the capitalistic system at present. Instead what happens is this:

We have periodically, largely under the influence of international forces, gold or credit inflows, a process of credit expansion which runs into inflation because of defective banking and investment systems. In the latest form, as seen in 1922-29, we have an excess of previous savings, swollen by large profits, supporting and supplemented by a pyramid of capitalized bank credit transformed into consumer purchasing power principally through expanded construction of productive capacity, partly through instalment sales of goods and partly by leaks over into consumption via spending of speculative profits. The consequent rise in prices during the process and before the productive capacity comes into use, constitutes a concealed confiscation of capital as the real value of dollar return on capital falls and the burden of fixed debt diminishes.

It is becoming more difficult to determine definitely on which side—consumption or saving—the balance of loss occurs during inflation periods. On the one hand the modern investment machinery makes for accelerated speculative profit which in part only can be actually reinvested and therefore tends to overflow into luxury consumption. This profit is fully offset by speculative losses during subsequent deflation. Actual investment of savings, or profit, or credit capital shows up in increased productive capacity more promptly and thus tends to depress prices sooner or more continuously. This tends to increase consumer purchasing power more promptly and is reflected in the complaint of profitless prosperity. The expanded application of instalment selling also tends to turn more of the expanded bank credit into consumer channels. But on the other hand, the investment of savings in construction, under modern methods, involves proportionately less and less labor, so that the conversion of capital into consumer purchasing power in the form of wages becomes less and less effective. Also, with the spread of participation in security speculation among all classes, more and more purchasing power is withheld from consumption and subject to subsequent loss during deflation. On the whole, however, I think the balance of loss tends increasingly to fall on the side of savings or investment even during inflation.

At any rate, when the new productive capacity comes into use production again runs ahead of purchasing power and the decline of prices and depression set in. The capital savings or credit that have gone into consumer purchasing power during the boom are then registered on the investors' books as losses—written off—by the depreciation of inventories, of security values, by defaults, moratoria and business failures. There is an additional direct conversion of capital or savings into consumption as bank deposits are drawn upon for current needs. Foreign loans made during inflation periods, not offset by balancing imports of goods, are another phase of capital waste, since the proceeds are really paid out to domestic workers and the losses borne by investors during depression. All that is, of course, a vast redistribution of purchasing power in which capital is dissipated or changes hands at reduced value, but in the meantime the difference has in large part passed into consumption during the boom. When the profit requirements or overhead are sufficiently reduced to be met out of the current level of purchasing power plus consumers' savings, business recovery begins and the cycle starts again.

During the depression labor, of course, loses by unemployment and lowered wages as much as or more than it gained in the transformation of capital during the boom; but this is offset in part by lowered prices and in part by diversion of capital funds into consumer purchasing power through private channels of charity and public channels of borrowing and taxation for unemployment relief. So here, too, it is probable that the balance of gain is on the side of the consumer and of loss on the side of savings, so far as the money accounting goes.

This process does work out on the whole and after a fashion, to the extent that it does result in a continuous dissipation of capital and confiscation of savings and profits, to the end that consumption in the long run is balanced with output. The cycle is essentially only a phase or aspect of the process of diffusion or distribution of purchasing power in a capitalistic society. That process is continuous; booms and depressions are only an extreme or special manifestation of it. Year in and year out, in all phases of the cycle, consumer expenditures run ahead of the national income by a practically constant percentage which represents the chronic wastage or degradation of capital, that is, its reversion to consumer income. That is the only way competitive capitalism gets along at all.

But obviously, in this economic organization, this is a very disturbing and increasingly dangerous process, even though one cannot be sure of oneself in calling it wasteful. There is, of course, the obvious loss or waste of unrealized potential productive power during depression, which implies a slower rate of progress in terms of rising standards of life. But whether unrealized productive power can be called waste is a question. More immediately serious are certain consequences that threaten to disrupt the structure and organization of the system. These are essentially psychological. First, the cumulative sense of insecurity which this cyclical process of capitalistic confiscation sets up in both investors and workers has become a powerful force preventing the smooth operation of the financial mechanism on the one hand and the industrial on the other. Hoarding in all its forms, capital strikes, flight of capital, all threaten a complete breakdown of the banking system; and the sense of insecurity in the worker profoundly affects consumer demand, regardless of purchasing power or prices, and so threatens the very existence of organized large-scale industry. Finally, of course, this sense of insecurity sublimates itself in social aggression, political disturbance and international conflict.

So, no one can safely recommend this process as a permanent scheme for solving the essential economic problem involved. Competitive capitalism must be recognized as an essentially unstable system, bound to be transformed in one direction or another. The underlying problem is, what direction?

I myself do not think that the direction of communism or any of the many forms of centralized socialization is the way out. These strike me as fundamentally as unstable systems as present-day capitalism, but for somewhat different reasons. Fundamental forces, purely physical in character, arising out of the consequences of the use of infinitely divisible and widely distributable energy, will determine the form of the stable system that will evolve, and that will be a greatly diffused, decentralized, highly localized and nationalistic capitalism. Everything that runs counter to this tendency, whether communism or capitalism as we know it, will be unstable and will not survive.

III

One immediate problem of stabilization in its national aspects is to deal with the transition phase, the period of perhaps twenty or fifty years, that lies ahead. Let me say, parenthetically, that I see no permanent results for stabilization from this depression. It will be followed by at least one boom, and possibly several more, in the grand style of the last; perhaps shorter and sharper, but not essentially different. Nothing in the situation as regards essentials of stability has been changed. We have merely accumulated the makings in this country of another inflation on a vast scale and nobody will stop it. We may have some changes in our banking system, but these will only help intensify the instability, not control it. We may also have some attempt to pluck a few feathers of profits from the capitalistic goose to make some slight cushions for labor through unemployment insurance reserves, but these will not be adequate to deal with the essential problem of balancing consumer purchasing power with production.

Undoubtedly the next cycle or two of boom and depression will be distinguished only by a more intensive drive toward social legislation in all its forms; that is, legislative schemes for ameliorating or easing the strain of unbalanced production and absorption upon employes by diverting a part of excess savings into indirect consumption in the form of free social services. But this will involve greater centralization, intensify the concentration of industry and run counter to the fundamental physical and psychological conditions and economic requirements of stability. It will tend only to run to state capitalism, solidify further the centralized capitalistic structure already too rigid, and cause its catastrophic collapse and disintegration instead of the slow transformation that is desirable. In any case it cannot make for stability, save in the sense of petrifaction.

In this period, too, we may have—as we have had during this depression—a great deal of lip-service to the slogan of "planning." Some of this will be sincere and, in certain restricted aspects, successful effort in individual concerns; possibly there may be some vague gesture toward it on a national scale by setting up a sort of economic council of stuffed shirts supported by a staff of slide-rule operators; but probably most of this will pass out of the picture in the next boom period.

At any rate the only possible or probable application of the planning concept will be in industry, through the trade organizations for the purpose of negative stabilization in the sense of production control and price fixing with employe protective measures thrown in incidentally as a sop to labor and suspicious legislators. This "planning" *a la* cartel is an extreme symptom of capitalistic self-defense. It has for its essential purpose to check the process of competitive confiscation which is the only automatic safety valve by which the survival of the system is assured; and it further tends to sterilize the element of technological improvement implicit in that process. Moreover, it inevitably implies an intensification of centralization, and so cannot prove to be of any permanent importance because the undercurrent is in the opposite direction.

But, quite apart from the fact that the fundamental forces that have set in are opposed to industrial centralization and concentration (nationally as well as internationally), and also apart from the fact that the idea of deliberate production control or organized sabotage sanctioned by law is fundamentally fallacious, there is a more immediate and obvious weakness in the concept of planning as applied to industrial management. This lies in its naive assumption that industrial management or organization *per se* can have any effective influence on the business cycle, everything else remaining the same. As a matter of fact I see no evidence at all that this depression was due in any measure to defects in industrial management, except possibly for some slight follies in financial policies of corporations, for which they were not to blame in the first instance. Nor do I believe that there is anything of vital importance that industrial management itself can do to prevent catastrophes of this sort. The truth is that your cycle starts in forces that lie almost wholly outside the sphere of influence of industrial management, and no stabilization effort is worth discussing seriously which does not deal with them first.

These forces—those of inflation and deflation—center in the price level, and they originate in and can be controlled only through the financial system in the broadest sense, not through the industrial structure and its operating management. The utmost that industrial management does is to play into them and intensify them to a moderate degree. By the financial system I mean, first, the private banking organization, including the regular banking structure, the investment banking system, the brokerage business and the security exchanges; second, the governmental fiscal machinery, including the tariff. All these together, and not any policies of industrial management, control the relation between saving, investment and spending which determines the flow and distribution of purchasing power, the distribution of wealth, the balance between production and consumption, the price level and the relation between creditor and debtor groups. Out of these relations the business cycle issues. The cycle is a financial phenomenon, not an industrial affair. The best proof of this is not that we did not have depressions before the modern credit system, but that we *did* have them before the industrial system.

Until this is recognized we shall make little real progress toward stability. The first and most important step toward stabilization is the social control of our financial machinery. And I believe that if this is done, almost nothing else is necessary. Given effective control of our banking system and fiscal policies, industrial management and organization may be left almost complete freedom—and the greater freedom the better. They will be able to do little damage, and the urge of individual initiative will induce advancement. In the end such initiative will serve as a constant check on concentration—which is the outcome of financial factors—and conform to the fundamental tendency to decentralization which is implicit in the physical factors underlying our economic evolution. This itself will make for greater stability.

The immediate approach to stabilization, therefore, lies along the lines of credit control and fiscal policy, not of industrial organization and planning. This is the more difficult approach because industrial planning, as at present conceived, really plays into the hands of vested interests—of creditor groups, organized labor and governmental bureaucracy—while credit control and fiscal engineering involve violent conflicts with them. The essential significance of the Soviet experiment is not its effort at industrial planning, which has serious weaknesses, but its decisive attack on the credit problem. The greatest handicap of capitalism is its archaic and ingrown credit and monetary system; that of communism is inexperience in machine technology and industrial management. These handicaps are both serious enough to make the two systems about equally matched; but machine operation and industrial management can be learned; improvement of the credit mechanism is essentially a problem of class struggle. This is the submerged issue in British politics today.

Socialization of finance in its essentials within the framework of the capitalistic system of free industrial enterprise appears almost impossible without profound political upheaval, because the forces opposed to it are so powerful; but I believe there is some promise of slow improvement, aided by the pressure of physical or technological influences now at work. This depression and the banking and fiscal situation it has given rise to afford an unparalleled opportunity for fairly rapid progress if those who understand the problem will only organize to take advantage of it.

IV

It is useless at the outset to work for any outright nationalization of our central banking system. Even in England, where the banking structure is simple, this is recognized. Public opinion is not ready for it nor are we technically prepared for governmental banking operation. Moreover, powerful private banking and investment interests are opposed to any such experiment and will be able to frighten the public, and if necessary sabotage any steps in that direction in very destructive ways. The fact is that the basis does not exist as yet for any direct governmental control over banking and investment. There really is no such thing as the Federal Reserve System, as a central banking organization. The idea is implicit in the Federal Reserve Act, which is the most important piece of economic legislation ever passed in this country, but its framers were frustrated from carrying out its full intention by the influence of special interests. We have only a system within a system, a group of powerful private metropolitan banks which control both the Reserve banks and the mass of smaller member banks throughout the country. They are the real sources of reserve credit; they are closely tied up with the securities markets; they dominate the money market; they control the only important Reserve Banks; and the mass of smaller member banks throughout the country are utterly dependent upon them, in loose ways not controlled by law, for access to reserve credit resources. Through their security affiliates, their holding companies, their chain and branch banking systems, which they are insistent on spreading, they have established an effective but invisible centralization of credit control. This control is exercised almost solely in the interest of the security markets, domestic and foreign, and not in the interest of domestic business stability, or the security of depositors. The ineffectiveness of the Federal Reserve System in this situation is sufficiently demonstrated, I think, in the fact that in such conditions as have arisen in this depression—a practical collapse of our credit machinery throughout the country—the nominal reserve system is practically set aside, the inside, concealed reserve system is brought into the open as a National Credit Corporation; and, as will be seen when Congress assembles, it finally becomes necessary for the government to set up entirely separate and new reserve credit agencies by reviving the War Finance Corporation, as an emergency national banking institution.

I feel, therefore, that the first step toward stabilization must be the strengthening of the Federal Reserve System so that it may meet the credit needs of industry and trade in the democratic way in which it was intended to serve them. This requires revision of the Reserve Act, first, so as to ensure greater security for bank depositors and prevent the possibility of repetition of that collapse of confidence in our banks which has so seriously crippled the country during the latter stages of this depression; and second, so as to ensure greater independence and more democratic access to reserve credit resources on the part of the individual member banks throughout the country. These purposes require complete and compulsory inclusion of all commercial banks within the system; establishment of insurance reserves within the Reserve Banks to guarantee bank deposits; the widening of the provisions and regulations regarding the classes of assets eligible for rediscount. All these things parallel the proposals of the Swope plan for establishing unemployment reserves to protect workers and for strengthening the trade associations, but seem to me of much greater importance for business stability.

In addition, certain specific changes are necessary to secure greater control over the money and securities markets in the social interest. The security affiliates of commercial banks should be separated by a Caesarean operation. It should be made definitely illegal for member banks to engage in selling of securities either directly or for trust accounts; possibly the trust functions of commercial banks should be more strictly controlled or likewise divorced. Their handling of corporation funds for loan in the call market without contingent liability should be controlled. Finally, it will be necessary to establish a separate system of reserve credit resources for rediscounting intermediate and long-term loans to industry, trade, and construction, similar to the intermediate credit and land banks for agriculture. The functions of the Federal Reserve System as it stands should not be complicated by taking on these additional essential tasks.

V

These changes will make for greater business stability by providing a more elastic and controllable credit mechanism without resorting at one swoop to socialization of our banking system; but moderate as they are they will meet bitter opposition from private banking interests and will mean a long and bloody battle before they are achieved. There is more immediate promise of progress in the other half of the picture—that of fiscal policy. This is not only inseparably connected with credit control, but it is an important independent weapon for promoting stability. In fact, although I attach great importance to improvements in our banking system, I believe that more can be accomplished quickly toward stabilization by appropriate improvements in our fiscal system than in any other way.

The problem of balancing production and consumption, with which the industrial planners are preoccupied, is essentially one of increasing purchasing power for consumers' goods, rather than of curtailing output. This can be met indirectly by continuous controlled credit expansion, but this requires changes in our banking system and psychology which will be difficult to achieve, fundamentally because it involves a continuous, concealed confiscation of claims to income through inflation. Moreover, even though this difficulty were overcome or disregarded, it must remain doubtful whether we can successfully or accurately finance consumption by the indirect process of financing production, for which our banking mechanism is primarily designed. What we need primarily is a direct diversion of savings or credit capital from competitive production into consumption. We do not have to destroy profits by the wasteful process of competitive confiscation; we need only assure ourselves that they will be properly used. This result can be attained more quickly and directly by use of the taxing power than in any other way. Taxation is the most powerful weapon for redistribution of wealth and income ever devised, and by that token it is the most effective agency for stabilization. All that is required is courage and intelligence in its use.

We can, if we wish, quite simply and easily prevent over-saving, over-investment, over-expansion of productive capacity, without waiting for this purchasing power to be confiscated by competition, inflation and deflation in the cycle of boom and depression by taxing away with suitable income surtax rates and inheritance taxes all excess corporate savings and surplus individual income that cannot be spent by the recipients on consumers' goods or replacement of obsolescent equipment. This surplus can be spent through governmental channels for the production of free social income by building public works, parks, museums, recreation centers, roads—all of which do not offer commodities or services for competitive sale, and in the building of which purchasing power for other goods is directly released in wages.

The fascinating prospects and paradoxes opened up by this concept of using the taxing power as an agency of wealth and income distribution and of business stabilization—its influence on employment, leisure, industrial activity and profits, its relation to obsolescence and technological advance, its bearing on economic decentralization, on international trade and finance—are too large and complex to elaborate here. I am quite convinced that no other approach offers quite as simple and certain a way of assuring business stability and rapid rise of living standards in a highly developed country within the capitalistic framework as this. The approach through centralized industrial planning seems to me largely irrelevant, psychologically impossible, and contrary to fundamental technological tendencies. The approach via credit control is difficult, vague, abstract, uncertain, though ultimately very important. The approach through fiscal policy is concrete, accurate and easily amenable to the engineering attitude.

It is useless to indulge in dialectic debate as to whether these lines of approach are socialistic, communistic or capitalistic. These terms no longer have much concrete significance to me. I personally believe that the ultimate economic organization of society is going to be essentially capitalistic in structure, after a perhaps prolonged period of confused and futile experiment with socialistic centralization and control in certain aspects.

As regards the relation of these terms to stabilization the essential thing to remember is that the most extreme form of capitalism and of communism as represented in the United States and in Soviet Russia are essentially the same in this respect: They are both forms of more or less systematic confiscation. The capitalistic organization as it now exists in this country and in Europe can survive only by force of a perfectly definite though disguised process of confiscation of unspendable surplus income or capital for purposes of consumption—partly periodic, partly continuous. This must be true of every highly developed industrial organization. The situation in Russia is just the opposite kind of confiscation—that which was practical in the early days of this country in a rough way—confiscation of current consumption income for purposes of capital accumulation. Each is suited to the situation. The only question that confronts both is whether each kind of confiscation can or cannot, shall or shall not be made systematic, smooth and as painless as possible for everyone. That is the essence of the issue of stabilization. In neither place has it yet been successfully met.

VI

In conclusion, let me touch upon one other aspect of stabilization—to me far more fundamental than any I have mentioned—in which I think that both Capitalistic America and Soviet Russia have failed. That is the psychological aspect. However each of these systems may meet the strictly economic problem of balancing consumer purchasing power with production, they must remain, as they now are, essentially unstable systems so long as that problem is met in ways which do not satisfy the instinctive necessities of the individual. We may define those necessities in many ways, for the creative energy of men has many direct and indirect expressions; but the essential necessities are summed up in simplest terms in the complementary concepts of security and freedom. In both systems the emphasis of the economic approach has increasingly come to be on security, to which freedom is being sacrificed; and this renders them essentially unstable.

Without carrying the comparison any farther, it is clear to me, at any rate, that capitalism is being transformed more by force of the necessity of offsetting the frustrations of freedom than by the necessity of assuring economic security. At present we stabilizers are preoccupied with the problem of removing the sense of economic insecurity, because we see that it is very disturbing to highly organized and centralized industry. We do not yet recognize that this sense of insecurity itself is only partly and superficially the result of economic unbalance, and that it is the expression of deep-seated and far-reaching frustrations of instinctive necessities of the individual quite as important as his economic needs. We must learn, for example, that the instability of consumer demand which arises from the sense of insecurity is the outcome not only of *unemployment* but also of *employment* under modern conditions.

To my mind the greatest promise of the approach to stabilization which I have suggested is that, in meeting the problem of economic insecurity, it at the same time offers some hope of meeting the other problems of psychological or creative insecurity in a natural and inevitable way which accords with technological tendencies. The same, I am sure, cannot be said of the prevailing concepts of industrial planning. Beneath the superficial symptoms of increasing centralization and concentration of control I believe there is a definite drift toward diffusion of industrial activity which will ultimately emerge in a simpler economic structure, making for greater local self sufficiency, increased economic activity, increased individual creative satisfaction, and greater stability.

News of the Sections

Central New York

The Central New York Section of the Taylor Society held its first meeting of the year on October 23, at the Hotel Syracuse in Syracuse. Richard Pass, President of Pass and Seymour, spoke on "Scientific Management Applied to Problems of Excess Labor During a Period of Reduced Industrial Activity." On November 20, Robert Merrill, a prominent Syracuse banker, addressed the group.

New York Metropolitan

On November 12, Virgil Jordan, Economist with the McGraw-Hill Publishing Company, presented a paper on "Some Aspects of National Stabilization." George Soule, an Editor of The New Republic, discussed the paper formally and Dr. Person and others contributed to one of the most stimulating evenings the group has had. Mr. Jordan's paper is printed in this issue of the BULLETIN so that all of our readers may have the privilege of studying it.

On the sixteenth of November the group met jointly with the other management societies in a meeting addressed by John M. Carmody, national president of the Society of Industrial Engineers and a director of the Taylor Society. Mr. Carmody has recently returned from Russia and spoke on the subject "What American Industry Can Learn from Management Methods in Russia."

University of North Carolina

Under Professor Schwenning's able leadership the University of North Carolina student group started the year's activities with an organization meeting attended by more than fifty students who are eager to increase their knowledge of scientific management. A reduced University income is making it particularly difficult to organize a program for this year. The interest and earnestness of Professor Schwenning and these students are therefore deserving of all our commendation and—more practical—help. In the matter of help, members whose work will take them South this year can assist by notifying the office, on the chance that Professor Schwenning might be able to use their experience in his program for the year.

Washington, D. C.

Under Mr. Southworth's leadership members and friends of the Taylor Society in Washington began the year with a luncheon meeting at the Brookings Institution on November 11. Lewis L. Lorwin of that institution addressed the group on "Economic Planning." The group joined with a small private club of economists and political scientists on this occasion, the first of a series of round-table discussions on questions of the day.

The Japanese Branch of the Taylor Society in 1931

By MISS KIYO KOBAYASHI, Secretary

During the last year, we had a considerable increase in members—from thirty-eight to fifty. It seems that our higher executives are more and more awakening to the need of systematic study of management problems, and are demanding institutions which will give them adequate information. We hope that the coming year may see more of these men included in our membership.

Our activities are inseparably combined with those of the National Management Association of Japan which includes twelve district management societies besides our own. Its publications are distributed among our members with invitations to its various meetings, yearly and monthly. For example, in October our members in Tokyo were invited to attend a meeting held by the Toyko Efficiency Society where Mr. O. Yamashita, chief of the Committee of Production

(*Continued on page 263*)

The Hazard of Business[1]

The Present Need for New Motives in Industry If It Is to Operate for the Public Good

By **HORACE B. DRURY**
United States Shipping Board, Washington

AS I understand it, national planning, as opposed to the more familiar type of planning which deals with the affairs of a single plant or business organization, is the effort to bring order into that vast and nebulous field that lies outside the scope, outside the functioning, of any one establishment. This field is as broad as the world and as intricate as human life. National planning involves not one step, or one decision, but an indefinitely large number of decisions and efforts. Its work will never be completed as long as mankind lives, and grows, and changes.

Although we may not hope at this meeting of the Taylor Society, or at a thousand such sessions, to arrive at anything approaching finality as respects national planning, those who are interested in this subject should not despair of accomplishment because of the formidable ramifications of the task. If a general public sentiment can be built up in favor of broad economic planning as an idea, this one achievement should in itself lay the foundation for simultaneous progress along many widely different lines. In each individual field, the leaders of thought could then apply their special knowledge and abilities toward the common goal. Also, we can multiply many-fold the results from our efforts if, as rapidly as the growth of public sentiment will permit, there can be effected such changes in the structure, and also in the spirit, of our economic organization as would permit an organized industry to do much of our planning for us.

Having made these rather general remarks, I will not attempt during the few minutes that are allotted to me to go farther into the vast subject of economic planning as a whole. Instead, I shall confine myself to discussing just one of the numerous concrete problems which must be solved if we are to have a well-planned economic system.

For the last two years no problem has given the world so much concern as the depression; and no feature of our economic system has been so bad in itself or stood so much in the way of progress along practically all other lines as this same depression. There are perhaps some who believe that the present depression is simply a repetition of what has occurred many times before; that occurrences of this kind are to be expected every so often; and that, on the whole, we might as well reconcile ourselves to them. Like many of the rest of you I have found it difficult to formulate even in my own mind an opinion as to the causes and significance of the depression. But of late I have been coming to feel more and more strongly that what we have been viewing as a depression might better be regarded as representing a major breakdown in our traditional plan of underwriting industry. The existing breakdown may or may not prove to be temporary. But it seems to me that the causes which have brought it on are permanent; and that revival, if it comes, must necessarily be followed by further and more serious breakdowns, until our economic structure is remodeled in some rather fundamental way.

The trouble, as it appears to me, is that investment, that is, the application of funds to employ labor and put industry in motion, has become permanently insecure. The outstanding characteristic of the period between 1925 and 1929 was what has generally been spoken of as overproduction. This condition was not peculiar to one industry but applied to practically all industry—to coal, textiles, copper, coffee, radios, automobiles, etc., etc. In all industries stocks were accumulating, and the equipment was capable of producing much more than was actually being produced.

Probably we did not in most of these industries have real overproduction in a physical sense. Had producers been willing to take a smaller margin of profit, had wages been raised and the purchasing power of masses of the people thus increased, I have no doubt that, although there might still have been overproduction in some specific lines, on the whole the world could have consumed far more than all the mines and factories and farms could have produced. According to generally accepted economic theory, the logical sequel to conditions such as existed prior to 1929 should have been a lowering of profits and interest rates, a relative increase in wages, and the establishment thereby of a new equilibrium, under which production and employment could have again gone forward in full swing.

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[1] Paper presented before a meeting of the Taylor Society, New York, December 4, 1931.

The tendency toward what has been called overproduction does not, however, represent the only important characteristic of recent economic development. Another outstanding fact, to which I wish to draw your special attention, is the rapidly increasing hazard which has been creeping into general business life, due to intensification of competition, and the changeableness and uncertainty of economic and other conditions. The period prior to 1929 was not one of universal business success. If one looks at the companies and industries that grew and prospered, success was phenomenal. But such important industries as the textile industry, the coal industry, farming, shipping, the piano industry, the phonograph industry, as whole industries, were in trouble. In England, hard times were general. Even in the countries and in the industries where prosperity was greatest, there were many individual concerns which were failures. This failure applied not merely to the weak, but in many cases to the strong, to those who had at some earlier time made great fortunes. Some of this failure, such as that of Armour, revealed itself long ago. Much of it, however, such as that of Lord Kylsant in England, was concealed, and did not come out in full clarity until the slump laid it bare.

Profits in business have always been irregular. But I should like to suggest the following reasons for believing that business success, for the great majority of business enterprises, is becoming increasingly uncertain.

1. The business man no longer has special preserves, special territory, where he has an established and more or less secure position. Business competition has now become national, if not world wide, in its scope. At almost any moment, a business man's carefully built up trade in Atlanta, or Rochester, or Chicago, may be invaded and imperiled by a competitor who works from almost any point in the United States. Moreover, the lines of demarkation between industries are not definitely fixed. The firms in one industry are continually making sorties into other more or less related fields—all of which tends to cut the ground out from under a business man.

2. The external conditions in many lines of business are to an increasing extent subject to more or less arbitrary control exercised by the government, by large corporate or other strongly organized business forces over which others among the interested parties have no control, or by actions taken in foreign nations. Throughout much of our industrial structure, the destinies of companies have come to be influenced by tariffs, government subsidies, public regulation, or other legislative or administrative acts, which, while they may in certain ways be helpful, yet introduce a new type of hazard. In many lines of industry a single competitor, or one supplier of materials, or one purchaser of the product, is so large, or one group of business men so powerful, that some policy adopted by that one company or that group—even though it is not so intended—may change the whole situation for other companies. To an increasing extent, therefore, the individual business enterprise, whether large or small, cannot count on a smooth development of its business along lines which the management can themselves foresee or control.

3. The technique of production has never changed more rapidly over wide areas of industry than since the war. New discoveries in chemistry, new types of machinery, new methods, such as those of scientific management, have in countless instances caused a product to be displaced by other products, or rendered methods of production obsolete.

4. The consuming world has been rapidly changing. Changes of a political nature, changes in purchasing power, changes in national habits, have radically altered both world and local markets. Nor was it to be expected that with an improvement in general conditions markets would become more stable. To the extent that the standard of living is raised above a subsistence level, people's fancies largely determine the character of their consumption. And fancies are very much subject to manipulation and unpredictable change.

Without going into further details with regard to what has been happening in recent years along the two main lines which have here been discussed, may I now offer this thesis:

Owing to epoch-making improvements in industrial technique, in the making of which the group represented by the Taylor Society has been as influential as any other, the productivity of industry has now been brought to a point so far above the amount of goods actually necessary to sustain life, the surplus of individuals and corporations which is available for reinvestment in capital equipment has become so considerable, that we are now actually approaching, and could in due time reach, a point where we would have all the capital goods—all the railroads, factories, mines, etc.—that we could put to good use. In this connection it must be remembered that all capital goods require upkeep, and that long before we had all the capital equipment that we could possibly use, we would have more than we could advantageously use, because of the cost of upkeep, repairs, obsolescence, etc.

But to continue with our thought, the normal tendency in a country where the supply of capital equipment was approaching the saturation point should be toward ever lower average profits, ever lower interest rates, until eventually, perhaps, there might be attained something approaching a zero interest rate. Smooth progress in this direction is rendered impossible, however, under the business system which we have thus far had, because of the irregularities and hazards which, as has already been pointed out, constitute so dominant a characteristic of present business life. Long before the average return on investment could drop to approximately zero, the lowered level of profits would cause serious trouble because, in many branches of industry, where—for the time being at least—conditions were less promising than average, active operation would probably mean not a small profit but an actual loss, a condition which would cause the disruption of industrial activity and employment in those under-average areas.

To state the problem broadly, it would appear that the continuity of industry, as industry is now organized, is absolutely dependent on a fairly high level of profits. If the usual returns on investment are high, the possessors of capital will not be unduly deterred by the fear of loss from employing labor and setting industry in motion. Ample profits furnish a factor of safety that absorbs losses, or at least makes investors willing to run considerable risk. Spurred on by the goodly returns that have customarily rewarded prudent investment, business men have, in fact, ransacked the world for opportunities to put labor and materials to work; and by this means industry has, for many years past, been kept reasonably active and the volume of employment reasonably steady.

But assume that these basic conditions are reversed. Assume that capital equipment has become very abundant; and that for business undertakings in general the prospect is for nothing better than a very moderate or low return. Obviously, most of the punch and daring would be knocked out of business. With nothing much to hope for, and much to fear, the typical business man or investor would be hesitant rather than energetic in schemes for putting men and money to work. Even after an enterprise had once been got under way, at the first sign of unfavorable conditions those in charge would, to the extent that they might be able, curtail or discontinue their operations. In short, the conclusion seems inevitable that, so long as we confine ourselves religiously to the hope of earning profits as the sole means of getting industry under way, a truly great abundance of capital—advantageous though this would be from some angles, and should be from all—must necessarily mean a highly sporadic and fitful industry. Such an industry must fall far short of utilizing to the full the capacity of our plants and of our working population.

Thus far I have been speaking in general terms. The thing that concerns me in the present situation is this. Just where are we going to find people who by their increased purchases, either of consumers' goods or of capital goods, will bring the volume of industry and employment back to normal? Certainly we cannot expect recovery at any early date solely by an increase in the purchase of consumers' goods. To bring the volume of employment back to the old level on this basis alone the ultimate consumer would have to consume not only as much but much more than he was consuming in 1929. He would have to buy more automobiles, wear better clothes, travel more, or in some other way spend more than he was spending in the days of prosperity. No! It would be difficult, by our utmost persuasion, to get the consumer to buy anything like as much as he was buying in 1929, let alone more, until after the depression has first been relieved in some other way—unless, indeed, those who have money become so afraid of banks and of the future that they start reckless spending.

The proper place again to start up that life-giving round of production, earnings, consumption, more production, more earnings, more consumption, is with the extension of the country's capital equipment. When people are once more employed, they would increase their consumption, and we should again be on the upgrade. But here we come back again to our great difficulty. Who is going to take it on himself to build more factories, invest in railroad improvements, open new mines, etc? In 1929, we had more of all these than we knew what to do with. And the situation today is certainly no better. In order to utilize to the full all the capital equipment which we had in 1929, it would have been necessary to make large reductions in commodity prices and presumably in the rate of return on industrial investments. To utilize further a large increase in capital equipment would necessitate going much farther on both of these lines.

Who, indeed, are there among our business men and investors who will be so bold or so rash as to embark during our present emergency on a further expansion of America's already large capital equipment, knowing that the returns must be materially lower than they have been in the past, in view of all the hazards surrounding business, some of which we have enumerated?

I believe that we are faced with a new situation in world history. England continued for many years to operate a great industrial system profitably. But the wealthy Englishman retired from trade, spent his money on estates, and the supply of fixed and circulating capital in England was never, at least until post-war days, increased to a point where there was not substantial profit in industry. If our Rockefellers and Fords, big and little, were to stop early enough in their careers and spend their accumulations in luxurious living, the particular problem we are here discussing might eliminate itself; but the solution would not commend itself to many people. The diversion of more funds from industry to philanthropy would meet with wider favor; but we have no reason to expect that such a course of action would be followed on a sufficient scale to be effective. Greatly increased wages would not necessarily solve the problem. If the wages were saved, laid aside for a rainy day, and this saving took the form of investment in productive equipment, the funds so invested, if invested with a view to profit, would be withheld in the same way that the funds of the millionaire are withheld if uncertainty of returns on investment is indicated.

A great war would quickly ease the present situation; but I am sure that none here would advocate that as a remedy. If political conditions permitted the development of China or India, and we could find some way of making it worth our while to invest in those countries on a large scale, that might postpone for some years the problem which now confronts us. Possibly developments of some unexpected sort in our own country or Europe may yet stimulate a capital development which will repeat more or less the experiences of the years from 1922 to 1929.

I cannot escape the feeling, however, that if we are to progress, sooner or later we must get away from relying on investment for profit as the exclusive regulator of industrial activity and employment, for the fundamental reason that, in a world whose capital needs are fairly well taken care of, the profits to be derived from putting capital and labor actively to work cannot possibly be the large, invigorating force that they have been in times past, when the world was much poorer and the premium on capital investment so much higher.

If there is any element of truth in the analysis which we have here attempted, then our country is indeed faced by a grave problem. It is not merely a problem for those who own and operate our industries. Every one of us, whether business man, worker, or consumer, has a very great stake in industry—in the whole of industry operating adequately and efficiently, and with continuity. As a matter of fact, the major interest in industry has all along been in the products which have been produced and in the employment which has been furnished. The importance of profits has consisted not so much in their size—though they have been fairly large, and up to the present have probably contributed most of our new capital—but in the fact that profits have furnished the chief motive force and guiding hand for the direction of industry.

But when the profit motive fails to keep industry moving, as it is failing now all over the world, it is time that measures be taken, either to make industry profitable, or to the extent that that is not possible, to keep industry in operation *profit or no profit*.

I have no concrete proposal to make at this time as to how we can best meet the problem which has here been raised. I will only suggest that one of the things which national planning must eventually do is to find some way by which those of our industries which are losing, but which should survive, can be given sufficient support to keep them in steady operation. The possible sources and methods of such aid are legion. The right method will largely depend on the character of such other plans as may be adopted for the relationship of our industries with the government, with their employes, with one another, and with the public.

SAVE JANUARY 27 FOR TAYLOR SOCIETY MEETING

Details on Outside Back Cover

National Long-Time Budgeting[1]

An Engineering Approach to the Problems of Economic Instability

By RALPH E. FLANDERS
Manager, Jones & Lamson Machine Co., Springfield, Vt.

IN READING Mr. Drury's paper, before I arrived, I found myself in surprising agreement with a great many of his views. That rather leads me to suspect that neither he nor I is a *bona-fide* economist. I have known a number of economists and have not found them agreeing with each other to any great extent if they could help it. Therefore, I suspect we do not belong to the union, and the members of the Taylor Society had better view with suspicion anything he or I may say. With that as a preamble, I am willing to commence.

I would like to start out with a couple of axioms which you will have to take without argument. The argument begins after I have stated them. The first axiom is this: For the Western civilized world there has arrived the physical possibility of a widespread, high and stable standard of living. That is the first axiom. The second axiom is: If we cannot bring that physical possibility for the whole Western world into actual being, it is still possible to do so for the United States. Those are the two axioms on which I hope there will be no argument. I certainly shall not argue them with you. The real problem begins at this point: How can we make actual that which is physically possible?

My own thinking has been based on the supposition that our economic difficulties are exceedingly complicated and difficult but not beyond the possibility of analysis in some useful way by the human brain. There are a great many investigators who start out with the contrary idea. Approaching the problem from that standpoint, I have made somewhat the same sort of general survey that Mr. Whalen made, and I am going to run over very rapidly the various causes that have been adduced, telling you my immediate reaction to each.

In the first place, I do not believe that the severe ups and downs of business to which we have been subjected and from which we are particularly suffering now, can be attributed to technological unemployment. My reasons for this opinion are to be found in Professor Paul Douglas' book on unemployment. He made a special study of that point and proved, satisfactorily to me at least, by analysis and the use of governmental statistics, that up until the summer of 1929, there had been no decrease in the total percentage of persons gainfully employed nor any major maladjustment of industry due to technological unemployment. That is not saying, of course, that industry as a whole has not been full of serious minor maladjustments. There have been thousands, tens of thousands and hundreds of thousands, of people who have had to make personal adjustment in their lives on account of technological unemployment. There have been whole industries which have had to readjust themselves or go out of business. There have been whole communities which have been hit so hard that they have not been able to recover on account of technological unemployment. But taking the thing as a whole, technological unemployment had not thrown out of work any large proportion of the population up to the summer of 1929; in fact, over a ten-year period, there had been a definite general increase in the total percentage of the population gainfully employed, amounting to about 2 per cent.

Again, as engineers, we are likely to say to ourselves that, if a lot of the wastes we see could be remedied, perhaps our troubles would be cured. When we see wastes, particularly in distribution, we have the feeling of some serious maladjustment. If the extreme cost of getting goods from the manufacturer, through the wholesaler and through the retail merchant's store to you and me could be taken care of, perhaps things would run more smoothly.

That also, I think, is a blind lead. If we remedy those wastes, we have done exactly the same thing we do when we invent a labor-saving machine, or when we apply scientific management to industry; we have produced technological unemployment of the same kind, requiring the same readjustments. In overcoming those wastes there is no more hope of straightening out our periods of economic unbalance than there is in the invention of improved forms of machinery.

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[1] Address presented before a meeting of the Taylor Society, New York, December 4, 1931.

Many people have laid our troubles on speculation. It seems perfectly clear that speculation is not a primary cause, but an exaggerating concomitant of the unbalances of industry and business. When the main causes are at work and are bringing in business at an ever-increasing volume, speculation exaggerates that advance tremendously. On the other hand, when business is going down, the opposite of speculation, fear, changing into panic, does the opposite thing. It is an exaggerating factor, not a primary factor.

Overproduction is a favorite cause, and we have had overproduction in many special commodities. Both of the previous speakers mentioned some of them. Overproduction, particularly in the inelastic commodities, such as wheat, cotton, shoes, soft coal and some other things, is a serious matter, and the larger the industry that has the specific overproduction the more serious is the matter. This has, of course, been particularly serious for agriculture, with its staple products of cotton and wheat, and for the coal mining industry.

But there has been no general overproduction in the great mass of consumer goods. The reason for saying that is plain to anyone who walks about a great city, or who gets on a railroad train and crosses the country. He will go through great areas where hundreds of thousands of people live in houses that are not as good as they would like to live in; wear clothes older and poorer and not so warm as they would like to wear; eat things not quite so good as they would like to eat; lack a lot of household conveniences and comforts that they would like to own; are tied down to the radius of a second-hand car instead of being able to take three-day trips out on the ocean and back again, as some others do. There has been no general overproduction as yet in this country.

The serious condition in which we find ourselves is due, it seems to me, to a confluence at one time of three things. These are: a typical business cycle, plus a typical war deflation, plus a unique agricultural distress. Let us discuss first the moot point, the point on which there is so much disagreement. What is the cause of the typical business cycle?

There is a classic economic theory which states that the act of production generates the purchasing power for buying the goods produced; and if we take a purely classical case, this is true. If we take a whole business community, which is neither laying up reserves nor drawing on them, where all the human factors of production are neither saving money nor drawing on savings but are spending every cent they receive, so that the whole of industry and every organization and every individual is in a state of economic balance, in that case production generates the power for purchasing the goods produced.

If a company makes $100,000 worth of goods in January and continues at a steady rate throughout the year; if for those goods it receives $100,000 from customers in February, and pays it out completely (without storing up reserves or drawing on reserves) for wages, for materials, for salaries, for dividends, for service, for taxes, for insurance, and all of that, then we have paid out month by month exactly the amount required for the community as a whole to purchase the goods which we have made; and if the whole of industry, the whole aggregation of individuals and organizations, is doing the same thing, the classical theory is true in that purely classical case—which never occurs in fact. As a matter of fact, all prudent individuals and all prudent businesses, when they are working along with a fairly good rate of income and feel fairly comfortable, start laying up a little bit; and that act of laying up, to the extent that money laid up is not through some other channel immediately put back into purchasing power, temporarily destroys its share of the ability to purchase back the goods produced.

That, of course, leads us directly to a pair of authors that are familiar to us, Messrs. Foster and Catchings, who popularized the paradox of thrift: that thrift is necessary for the individual and the firm, but dangerous for society. They suggested some remedies for that paradox. One of them was that when an unusually large volume of money had been temporarily sterilized in savings so that the community, as a whole, was not able to buy back the goods produced, the Government or the Federal Reserve Bank should step in and expand credit by the amount of the sterilization. They also have other remedies relating to the public-works program in hard times, which come later.

There is an English economist by the name of John Maynard Keynes who wrote a book on money. There are only a few chapters of that book which I can understand and those, fortunately for you and for me, are the only ones I am going to talk about. But he resolves the Foster and Catchings' paradox. He shows very clearly that the way in which savings normally get back into purchasing power is through the medium of investment. He summarizes the economic effect of savings and investment in this way: When the rate of savings exceeds the rate of investment, business declines; when the rate of investment exceeds the rate of savings, business improves. In other words, if those savings are invested, they go back into purchasing power, and the industrial community retains its ability to purchase the goods made. If they go back into investment faster than the savings accumulate, so that the whole body of savings is being reduced, then there is a greater demand for goods than the rate at which goods are being produced, and business improves. The converse is true: that when the rate of savings exceeds the rate of investment, business declines.

In spite of the formidable character of that two-volume book on money, these ideas are comparatively simple. He puts the same thing in a slightly more complicated form when he brings in the rise and fall in prices. He says that when the rate of investment exceeds the rate of savings, business improves and the price level rises. When the rate of savings exceeds the rate of investment, business drops off, and the price level drops. Yet there is one thing that Keynes completely leaves out. He does not indicate that there could, under any conditions, be a series of circumstances in which it is not possible to invest as fast as you save; but in that he seems to dodge the real heart of the question.

Now there is another Englishman, J. L. Hobson, who wrote a little book entitled, "Rationalization and Unemployment." Mr. Hobson brings out this point: that conditions may arise, and in fact are constantly arising, in which it is not possible to find sufficient profitable investment to take care of savings. We are getting down now to the position Mr. Drury has been taking. As Mr. Hobson suggests, that may occur when the money received by industry for the production and distribution of goods goes too much into the hands of those who invest and too little into the hands of those who purchase. If too much has gone into the hands of those who invest, and too little into the hands of those who purchase, so much purchasing power has been eliminated that the correspondingly increased volume of money looking for investment cannot find profitable use.

It seems to me that Hobson really completes the theory that starts with the classical theory of economic balance, goes through the Foster and Catchings' paradox, to Keynes' statement of the facts of the phenomena of the business cycle, to his own statement of the causes which lie behind those facts.

Until I, at least, find some more complete statement I am going to build my own economic thinking along the line of that original economic theory plus the additions of these three sets of authors.

I stated that the seriousness of this present situation was due to a confluence of three things, of which the typical business cycle, which I have just described, was one and a typical post-war deflation a second.

What is a typical post-war deflation? Since the beginning of the industrial age we have had three long-time price declines following periods of warfare. The first was the period following the Napoleonic Wars and beginning about 1818. At the end of the inflation which financed those Napoleonic Wars, a sharp drop commenced which, with many ups and downs, continued until about 1850. That was a long period of a great financial distress and failures in this country. I have seen the statement made that all but one life insurance company in the United States either failed or went through reorganization during that long-time price decline. It was a period also of political struggle, as these economically distressful periods always are. It ended about 1850 with the discovery of gold in California. This brought on a gold inflation, which raised the price level and started prosperity again. Things were not continuously hard during that period. There were ups and downs, and sometimes people felt better about it, and sometimes worse.

Next came the Civil War in this country, and the series of mid-century wars in Europe, which culminated in the Franco-Prussian War in the early seventies. There again followed a period of decline from the paper inflation by which war is financed. This decline, with its various ups and downs, continued until about 1895. Again, we had labor troubles, strikes, agrarian unrest, greenbackism, Populism and all sorts of difficult times. Still it was masked in this country to a considerable extent by the opening up of new resources in virgin territory, with the best chance for the investment of new money that was to be found anywhere in the world. Millions of European money, in fact, came here for that purpose.

Along about 1895 the price level started up again, due to the discovery of gold in South Africa and Alaska and the invention of the cyanide process for abstracting gold, which made its recovery from low-grade ore very much cheaper.

About the time of the World War we again had the typical paper inflation by which every great period of war is financed, followed in 1920 by the typical deflation which has followed every war. This inflation and deflation are serious things. If we are reckoning up the causes of misery and distress which come from warfare we must put inflation and the subsequent deflation which accompanies it as among the most serious. It is long drawn out, and the cause of intense misery to many thousands of people. There is that second cause for the seriousness of the particular cycle in which we find ourselves. I will call your attention to a good characterization by Colonel Ayers, of the Cleveland Trust Company, when he announced a few months ago his conclusion that we were enduring, not an ordinary business cycle, but a "major, secondary post-war deflation." That gives it a good name and, I presume, is comforting to that extent.

The third element that magnifies our troubles is the unique agricultural crisis. There has been, I think, no time in the world's recent economic history, at least not since the beginning of the industrial age, when such a series of important developments in agriculture have culminated at once. That relates particularly to the staples.

With wheat there has been the rapid development of the tractor and the combine. There has been the rapid development since the war of the necessary tools and methods for growing wheat safely on more arid areas than had previously been the case. There has been the development of new varieties of wheat, which grow successfully on more arid areas. There has been the development of techniques of management, particularly by Professor Wilson of the Montana Agricultural College, whereby a farmer and a hired man can cultivate successfully 1500 or 2500 acres. There has been the export of all of these methods, processes and machinery to less advanced countries with low labor costs, of which the most interesting is Russia. There has been no great effect on the market at the present moment from this production of wheat by Russia, but that country certainly presents a threat of future competition. There is the further fact that wheat is one of those inelastic commodities whose consumption does not greatly increase with a drop in price.

All of these things, quite independently of the other factors mentioned, have seriously affected the prosperity of a very large number of people at the present moment.

Cotton is in a similarly unsatisfactory condition, due to other causes. The west of Texas has opened up a great new cotton-growing area, which can produce 75 per cent more than the old South. Their picking season is not rainy, which means that the bolls may be left on the cotton stalks for months at a time and picked by the farmer and his wife and children after school, rather than by a big gang of darkies as is necessary in the old South. The boll-weevil also is not as serious a pest in northwestern Texas as it is in the old South. Meanwhile cotton growing in Egypt is developing. The Sudan is being opened up. Russia is opening up the Turkestan area. Then again the rayon process has been developed and has crowded out much of the cotton that had previously been used. All these things together have combined to put the industry in a serious condition.

We have this combination of a typical business cycle, a typical major secondary post-war deflation, and a unique agricultural distress. All of these things, combined with the psychological effects of a continuously lowering price level, have developed into a pathological state which has intensified the whole thing.

The continuously lowering price level produces the element of fear. First, there appears the element of caution. As the price level continuously descends, the investor says, "Things are going to come down; I will wait a month before I buy." The next month he sees that things have come down, and that he was wise in waiting; he waits another month, and another month —and so on. In the meantime continuous decline in commodity prices affects the price of farm lands, then of city real estate, later of stocks and bonds, and begins to take the value out of every bit of collateral that our banks hold. Not merely the farmer, and next, the ordinary investor, but the banker himself begins to fear. As the price level continues to drop that fear becomes at times a perfectly justifiable panic. The necessity under these conditions for keeping money liquid, which again stops investment, which again furthers the fall in prices, in an ever-continuous and never-ending circle, brings us into a rather logical state of pathological fear.

We are getting toward the end of the evening, and probably I should begin to talk about remedies, although I have been putting that off as long as possible.

It would not be wise for two men, who tend to agree with each other and are therefore amateur economists, to propose remedies that are too fundamental or too complicated, that go too deeply into questions of finance, gold supply and all the rest of it. Some of these things, therefore, I wish to lay as a burden on the shoulders of those who are wiser than I am, and perhaps wiser than Mr. Drury and myself put together.

But one of the things that at least is worthy of our attention is the fact, for instance, that Mr. Keynes, who analyzed in such an acute and mathematical way the effect of investment and savings on the volume of business and the price level, is one of those who are convinced that the price level itself may be safely manipulated, controlled and stabilized. That is one of the most important questions for us to consider at this present moment. If we could be sure that the fall in prices had been stopped, if we could be sure that we could raise the general price level 10 or 15 per cent, this pathological condition of fear would immediately vanish. If we could be sure of that, we could know that the present value, at least, of our collateral was going to hold good, and we could adjust ourselves to it. We could begin to have some courage and pay out money to buy this, that and the other thing. We could begin to invest.

We know well enough, as an extreme case, that if our government should suddenly decide to go crazy and print paper money at the rate at which it was done in Germany, Austria and Russia after the war, not merely would people begin to invest, but they would be frantic to invest. The fear would be of the other sort, that they could not buy real goods with unreal money quickly enough. Now I do not want anyone to get the idea that I recommend that the printing presses at Washington work overtime for the next several months. I only mention that to show that there are psychological possibilities in the other direction as well as the one in which we are headed now. The fear could be turned in the other direction if that were necessary, but it should not be necessary.

As to the possibility of safely manipulating the price level, economists are divided. The group of economists who believe that it can be manipulated and controlled are so important that the onlooker must listen to them. Those who believe that it cannot be manipulated are also important. In general the bankers of this country believe that the price level cannot be directly manipulated. In general both economists and bankers in England believe that it can be. We are met with a complete division among experts. Nevertheless, the body of opinion behind the possibility is so important that it would seem to be a major object of those responsible for our financial policy, both governmental and banking, to see if there is not some means by which the price level can be controlled in the interest of stability.

To go on to another engineering approach to the problem of stability, the other day Professor Raymond presented a paper which purported to be a mathematical analysis of the problem of equipment replacement, before a meeting of the American Society of Mechanical Engineers. It was intended to be, and I believe was, a fundamental paper applicable to all sorts of problems. It is, in other words, a mathematical analysis of the desirability of new investment. The use of such an engineering approach to the problem of investment does not, of course, completely solve the whole problem. There are external conditions involved, as well as internal, which cannot be measured mathematically. There are questions of the character and ability of people who are responsible for using the investment after it is made. Everything cannot be done by mathematics, but so far as the problem can be investigated in an engineering and mathematical way, it is Professor Raymond's belief that he has covered the whole subject.

One of the possibilities for this engineering approach, and the major problem, is that it can be used by engineers to point out to those who hold money places where savings can profitably flow into investment. If, for instance, Mr. Drury's thesis is true, the time is coming when bankers will be anxiously asking engineers to use that formula. They put their money in the call market at one-half of one per cent when they have nothing else to do with it. The banking fraternity should be asking the engineering fraternity where it can put money that will earn 30 per cent, or 10 per cent, or even 5 per cent. It is possible right at this moment to put money in places where it will earn 15 per cent, or 30 per cent. If the banking fraternity will organize to meet an engineering fraternity prepared scientifically to estimate the safety and profitableness of investment, then the flow of savings into investment, and consequently the maintenance of a desirable volume of business, will be more easily maintained.

Here is another thing which also involves the engineering approach and is at the same time fundamental. We have a highly elaborated scientific approach to modern business. That approach began with Frederick Taylor in the American Society of Mechanical Engineers on specifically engineering and machine-shop management problems, but on principles so broad that they have spread into every kind of business and into every land in the world. Those principles have been applied by men who do not even know Mr. Taylor's name, and perhaps in ways of which he would not always have approved; but his influence is clearly felt. Besides the Taylor Society, such mediums as the Management Division of the American Society of Mechanical Engineers, the American Management Association, the National Association of Cost Accountants, and dozens of others devoted to business procedure, are based on those principles.

One of the engineering practices which is coming to be recognized in this country is long-time budgeting. The place where it is most needed is in governmental practice. For the sake of control of the business cycle it needs to be applied to the practices of the United States Government, of the separate states and of the municipalities and smaller subdivisions of government.

What is meant by long-time governmental budgeting? It means that throughout the period of the business cycle there is a time to tax and a time to relieve taxation, a time to borrow and a time to repay, a time to spend and a time to retrench, a time to expand the currency and a time to contract it. It does *not* mean that the budget must be balanced within a given fiscal year. When the principles of long-time budgeting are applied to government, they can be applied in such a way that the price level will be restrained from rising when it should not rise and encouraged to rise when it is falling; that money will be plenty when it should be plenty and scarce when it should be scarce; that taxation will be heavy when the taxing is good and relieved when the taxing is not so good. Those same principles, if carried out, would, I think, put the quietus on the sales tax and many other plans which penalize business operations in the attempt to make taxation equal at all times to the necessities of expenditure—which is not only impossible, but would be undesirable if it were possible.

Today is the time to borrow rather than the time to tax. The time to tax and not to borrow was in 1929. It would have been a whole lot better to tax until it hurt then than to give until it hurts now, and it would have had a much better effect.

There is just one other item that I am going to mention, and that is a piece of national bookkeeping which is being disregarded. Modern accountancy goes back to scientific management for a great deal of its interest and many of its principles. The balance sheet of these United States in their outside relations should be looked at in the same careful way in which the balance sheet of the individual firm is scanned.

The annual report in the Year Book of the Department of Commerce gives this in the balance of international payments. That is an exceedingly significant and neglected document. That balance sheet shows that we have exported a certain amount and imported a certain amount; that we have loaned this much and had this much of our loans repaid; that we have received this much gold and shipped this much gold; that the various "invisible" items, like the amounts paid out in foreign travel and freight to foreign shipping concerns, are entered on their appropriate side of the balance sheet. Until this last fiscal year the thing has been balancing to within a comparatively small amount, $25,000,000 to $30,000,000. Unfortunately, for purposes of control, this last national balance sheet showed a discrepancy of some $347,000,000. That discrepancy should have been of as much concern to us as though we had been unable to close our own private bookkeeping by a similar amount.

This discrepancy was a serious thing and recognized as such. It resulted in the resignation of the man who made up the balance sheet, and who thought he knew what the trouble was and wanted to fix it. It is now being examined by a committee of the American Economic Association.

Let me point out the significance of that balance sheet. A glance of the same sort that the ordinary manufacturer would give to the balance sheet of his own organization would have indicated the impossibility of certain international financial transactions in which we have been engaged. One of the things we should have seen was that when we were financing our Allies, ten or fifteen years ago, we were not lending them money but goods. At the present time we refuse to receive goods because we do not see how it can be done safely. We insist on receiving gold. We have received about all the gold that the world can possibly spare, and there is no more. Therefore, unless we are willing to receive goods, in a very large quantity indeed, those debts will not be paid. That is one thing that we learn from looking at that balance sheet. It is either money or goods, or a third thing, titles of ownership in European factories, mines, railroads or other investment securities. To my mind that last would be an exceedingly dangerous procedure. It would foment discontent, and even hostility, on the part of the people whose resources we were owning.

A look at that national balance sheet would have indicated to international bankers in the last three or four years that it would be impossible for us ever to recover, by any means which we were willing to use, the loans that have been made since that time.

A condition similar to the one existing at the beginning of the nineteenth century between science and invention exists at the present moment between economics on the one side and business and banking on the other. Science has taken on the whole too much credit for what has happened in the world. It really had little to do with the industrial revolution. The industrial revolution was accomplished by inventors, humble men from the middle classes, who devised machines, joint stock companies, and the whole process of modern industry. Science on the other hand had been doing things quite removed from actual, active life. The only scientists concerned in the industrial revolution, so far as I have been able to find out, were Sir Humphry Davy, who, with his safety miners' lamp, made coal mining a much more economical process; and James Watt, who derived the scientific outlook from his connection with Glasgow University. The world would not be where it is today, for good or evil, however, if science and invention had remained unjoined. The union between them was made largely in the schools in the early nineteenth century, and has resulted in the thing we now call engineering, on which the modern world is based.

I am raising the question as to whether there is not a possibility of a similar union between economics on the one side and banking and industry on the other, to result in a new thing which we might call social engineering. If there is such a possibility, let us try to make the union, even though we cannot clearly see what the results may be.

A Report on Rochester's Plan of Combined Unemployment Relief and Business Stimulation

By HELEN A. CARNES

OVER a year ago the Taylor Society was asked by the President's Emergency Committee for Employment to make suggestions for immediate relief of unemployment. As a result a number of proposals was submitted by a Taylor Society committee. These proposals suggested the immediate creation throughout the country of a series of community planning boards. The unit community—county, village, city or section of city—was considered the logical starting point for immediate relief measures, with Federal and State employment commissions as agencies of inspiration, information and co-ordination.

The following were suggested as lines along which such community planning boards might well proceed expeditiously:

1. Create an emergency labor exchange which will take a census of the unemployed and classify them according to skills, experience and capacities.
2. Simultaneously make a survey of the need of public works and of the needs of individual enterprises for the purpose of formulating projects which will give employment to those in need.
3. Formulate specific projects which would create jobs: in public works, in industrial and mercantile establishments and even in dwellings (including details of work recommended, costs and sources of credit) and submit them as moral community obligations of those respectively concerned.

The following were some of the specific projects suggested:

1. The local government can begin work immediately on both new construction and maintenance of highways, parks, playgrounds, water systems, sewers, and other public works, bringing forward into the next six months work which normally would be distributed over a considerably longer period.
2. In a similar manner industrial plants can begin and concentrate investment in necessary new construction and new equipment and in general maintenance work; many such projects have been planned and shelved during prosperity for lack of time to execute them. It would be good management to do this work now while materials are cheap and labor available.
3. Mercantile establishments likewise can now construct the new store fronts which they have contemplated, procure and install new show cases and shelves, and otherwise prepare for active business.
4. Owners of homes and buildings for rent will find the present an advantageous time for economical new construction and maintenance work. Apparently inconsequential in each instance, the aggregate of such work would have a very considerable influence.
5. Banking institutions should arrange to grant credit to the limit permitted by their fiduciary responsibility; and in addition individuals of financial competence should organize a local syndicate which can furnish additional increments of credit.
6. In addition to capital construction and maintenance projects suggested above, both industrialists and merchants should manifest a more venturous confidence in the future; the former by resuming the production of staples and experimenting with new lines, the latter by price reductions which will clear their shelves for new merchandise purchased at lower costs and salable at lower prices. For the time being profits and perhaps overhead should be disregarded and these costs carried as an investment in the future.
7. Industrialists and merchants both should re-examine their management methods from the standpoint of scientific management and discover every possible method of stimulating business and every possible economy of purchasing, production and merchandising, thereby establishing in reduced costs of management and operating a basis for continuance of employment and high wages.
8. For the time being in order that some earned income may be realized by as large a proportion as possible of workers

in the community, all employers should distribute available work by shortening work periods rather than by employing a limited number full time.

It has been interesting and gratifying to note, from recent press reports and the public addresses of Mr. Hopkins of the Employment Center of Rochester, N. Y., that such a program has been found practical and effective in one community and, more encouraging still, that other communities are showing an interest in what Rochester has accomplished as well as a desire to follow her lead.

Rochester has a community planning board, a model employment exchange, an unemployment insurance fund which some nineteen industrial concerns are building up co-operatively; in other words, she is justifying her reputation for an unusual awareness of group problems and a willingness to tackle them as a community.

The Planning Board, as we should call it, was able to enlist the services of more than fifteen hundred volunteer workers in a house-to-house campaign in which pledges were secured from householders, factories and mercantile establishments to spend over six million dollars in repairs and the expansion of facilities which would otherwise have been deferred. This was accomplished in ten days and the pledges amounted to three times the goal set by the board. Over 500,000 individuals were reached in the campaign; in some cases there were only enthusiasm and moral support to give; in some a pledge of a day's work on house or garden was secured; in others thousands of dollars worth of new construction were pledged to stimulate business activity.

The Employment Center is assisting in supplying the demand for workers created by these pledges of activity. A corps of clerks and a set of books are being used to make sure that the $6,000,000 is actually spent. As a result, the Rochester employment curve for late December turned upward, and retail sales at the close of Christmas week had surpassed expectations.

The chairman of Chicago's Joint Emergency Relief Fund has expressed curiosity concerning the working out of the Rochester plan; a city official of Fort Wayne, Indiana, has studied it and a representative of the civic development department of the U. S. Chamber of Commerce has been sent to observe it. An immediate nation-wide adoption of such a plan of community activity would do much to relieve the suffering of this winter.

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Control, Bureau of Rationalization, Department of Commerce and Industry, and also one of our members, spoke on the leading ideas of rationalization in Japan. Members of the "American Factory Inspection Tour," which was organized by our Branch last year, have several times been asked by the district societies to deliver lectures on what they saw in America. We are making a plan to establish a closer union with these societies in the coming year, which may be our most effective means of serving our members who are scattered all over the country.

There is one thing more which we cannot omit; that is, Mr. Ueno, chief director of our Branch, has made a plan to translate and publish the complete works of F. W. Taylor. The first of the three volumes is going to be published within a few days (November 13). In view of the present situation of economic crisis, as well as the superficial application of various features of scientific management, referred to in Mr. Hathaway's preface especially written for the volume, Mr. Ueno's undertaking, that is, the rediscovery of Taylor and the technique of scientific management, will be most timely in suggesting a remedy for our industry.

Gilbreth Medal

At the fall meeting of the Society of Industrial Engineers, held in Pittsburgh, one day was designated as Gilbreth Day. The first award of the Gilbreth Medal of the Society was made to Mrs. Gilbreth. The speakers were L. W. Wallace, Joseph W. Roe, John W. Carmody, Professor G. C. Brandenburg and Mrs. Gilbreth.

Reviews

Business Adrift. By Wallace Brett Donham, with an introduction by Alfred North Whitehead, Whittlesey House, McGraw-Hill Book Company, New York, 1931, pages xxix, 165.

This book is an analytical and careful treatise on foresight in business and business in its relationship to American and world-wide economic welfare. It is essentially American and is written with sympathy and understanding of the present-day conditions. The author is capitalistic in his instincts but is obviously open-minded with relation to the progress of other economic doctrines.

The book starts with an introduction by Mr. Whitehead "On Foresight." Mr. Whitehead's standing as Professor of Philosophy at Harvard qualifies him to discuss this subject and his introduction is interesting and instructive.

Mr. Donham, who is Dean of the Harvard Graduate School of Business Administration, then proceeds to discuss under the title of "The Theory of Foresight" the various phases of analyses and syntheses necessary in order to forecast conditions. He follows this chapter with one on "Business and Civilization" in which he asks a question which he regards as the keynote of his discussion and which is repeated throughout the book:

> How can we as business men within the areas for which we are responsible best meet the needs of the American people, most nearly approximately supplying their wants, maintain profits, handle problems of unemployment, face the Russian challenge and at the same time aid Europe and contribute most to or disturb least the cause of international peace?

The book then proceeds with a discussion of the wants and desires of the American people and a historical analysis of "Security Illusions of 1907 to 1929," including a discussion on the unemployment situation during that period. The disappearance of this illusion is discussed and rather extensive consideration is given to our export situation. All of this material is exceedingly interesting and while it may not be agreed to by the reader will certainly cause serious thought.

The final chapters discuss capital and democracy, employment policies, plans for American business and a cure for unemployment.

The following quotation from the last chapter of the book summarizes the attitude of the writer:

> The really significant facts are that we must have a general plan for American business and behind that plan a sound social philosophy or we shall through unconscious mistakes in the use of our great power destroy Western civilization. It is my belief that the only hope for Western civilization centers in the ability and leadership of American business and on their recognition of the fields in which government action is necessary to secure sound results in their capacity to make and carry out a major plan conceived in the largest terms by men of the highest ability and social objectives.

The book is written in a style that is interesting for any business man to read and while in spots it is rather heavy, nevertheless when one considers the difficulties of the problems which the author faces, he has made the book surprisingly readable. Few persons will take exception to Mr. Donham's attitude, although there will be disagreement with his conclusions and with the business and unemployment plans which he advocates. The book may readily be regarded as a distinct contribution to the solution of our present-day economic difficulties.

W. D. FULLER[1]

Books Received

*_America's Tomorrow._ By C. C. Furnas, Funk & Wagnalls Company, New York and London, 1932, pages xv, 295. ($2.00).

*_Applied Personnel Administration._ By J. E. Walters, John Wiley & Sons, Inc., New York, 1931, pages ix, 338. ($3.00).

*_Handbook of Business Administration._ W. J. Donald, Editor-in-Chief, McGraw-Hill Book Company, Inc., New York and London, 1931, pages lxii, 1753. ($7.00).

*_Industrial Hygiene for Engineers and Managers._ By Carey P. McCord, M.D., Harper & Brothers, New York and London, 1931, pages x, 336. ($5.00).

The International Labor Organization. The First Decade. Preface by Albert Thomas, George Allen & Unwin, Ltd., London, 1931, pages 382. (12s 6d). Distributed in the U. S. A. by the World Peace Foundation, 40 Mount Vernon Street, Boston.

*_Marketing Research Technique._ By Percival White, Harper & Brothers, New York and London, 1931, pages x, 236. ($4.00).

*_Market Research._ By Paul Redmayne and Hugh Weeks, Butterworth & Co., London, 1931, pages xxiv, 212. (7s 6d).

Men of Earth. By Russell Lord, Longmans, Green and Co., London, New York and Toronto, 1931, pages xiii, 298. ($3.00).

Men Working. A story of the Goodyear Tire & Rubber Company. By Norman Beasley, Harper & Brothers, New York and London, 1931, pages xix, 296. ($3.00).

New Roads to Prosperity. The Crisis and Some Ways Out. By Paul M. Mazur, The Viking Press, New York, 1931, pages xiv, 194. ($2.00).

Personnel Management. By Walter Dill Scott, Robert C. Clothier and Stanley B. Mathewson, McGraw-Hill Book Company, Inc., New York and London, 1931, pages xvi, 583. Second Edition. ($4.00).

*_Poverty in Plenty._ By J. A. Hobson, The Macmillan Company, New York, 1931, pages 92. ($1.25).

Principles of Business. By Charles W. Gerstenberg, Prentice-Hall, Inc., New York, 1931, pages xviii, 809. Fifth Edition—Revised. ($5.00).

*_Problems in Sales Management._ By Harry R. Tosdal, McGraw-Hill Book Company, Inc., New York and London, 1931, pages xxii, 968. Third Edition. ($6.00).

*_Readings in Industrial Psychology._ By Bruce V. Moore and George W. Hartmann, D. Appleton and Company, New York, 1931, pages xxix, 560. ($5.00).

The Riddle of Economics. By Elisha E. Garrison, The Macmillan Company, New York, 1932, pages x, 329. ($2.50).

The Stabilization of Employment in Philadelphia through the Long-Range Planning of Municipal Improvement Projects. By William N. Loucks, Ph.D., Research Studies XV, Industrial Research Department, Wharton School of Finance and Commerce, University of Pennsylvania Press, Philadelphia, 1931, pages xix, 341. ($3.50).

*_Successful Living in this Machine Age._ By Edward A. Filene, Simon and Schuster, New York, 1931, pages x, 274. ($2.50).

*_Wages and the Road Ahead._ By James D. Mooney, Longmans, Green and Co., London, New York and Toronto, 1931, pages ix, 149. ($2.00).

*_The Way Out of Depression._ By Hermann F. Arendtz, Houghton Mifflin Company, Boston and New York, 1931, pages xii, 105. ($1.00).

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[1] Secretary, The Curtis Publishing Company, Philadelphia, Pa.

*To be reviewed later.

AUG 5 1933

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TWO NOTEWORTHY MEETINGS

The Taylor Society announces two special discussion meetings, as follows:

JANUARY 27 AND APRIL 14, 1932

5:00-10:00 P.M. (Dinner Intermission)
HOTEL SHELTON, NEW YORK

The plan is to present three papers before dinner at each of the sessions, to meet for dinner from 7:00 to 8:00, and to have general discussion following dinner. The first meeting will consider emergency measures for relieving the present depression; the second will consider means of avoiding future depressions. Speakers will be announced later. The two programs follow:

January 27: Financing Consumer Demand

1. **Bond Issues for Public Works—Federal, State and Local**
2. **Public Credit for Promoting Special Activities, e.g., Building**
3. **Freeing Local Credit for Community Maintenance and Replacement Programs**

April 14: Money, Credit, Banking, Taxation

1. **Industrial Stabilization through Fiscal Policy**
2. **Industrial Stabilization through Control of Credit**
3. **Industrial Stabilization through Regulation of Investment**